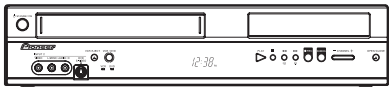
Pioneer sound.vision.soul

Service Manual



DVR-RT501-S

ORDER NO.
RRV3140

DVD RECORDER

DVR-RT501-S
DVR-RT401-S

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Model	Type	Power Requirement	Region No.	Remarks
DVR-RT501-S	KUCXTL	AC120V	1	
DVR-RT401-S	KUCXTL	AC120V	1	

For details, refer to "Important Check Points for good servicing" .

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ⓒ**PIONEER CORPORATION 2005**

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SAFETY INFORMATION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.

Health & Safety Code Section 25249.6 – Proposition 65

NOTICE

Fuse symbols (fast operating fuse) and/or (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE

Les symboles de fusible (fusible de type rapide) et/ou (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

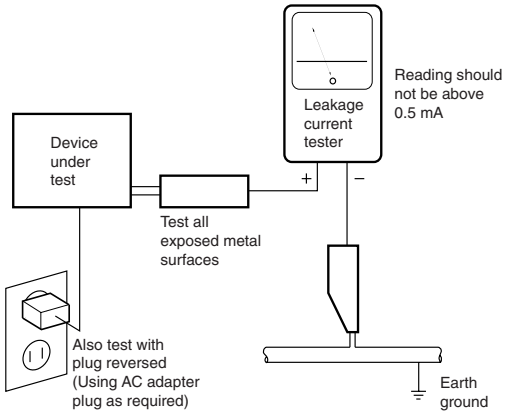
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60 Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5 mA.


Leakage current tester
Reading should not be above 0.5 mA
Device under test
+
–
Test all exposed metal surfaces
Also test with plug reversed (Using AC adapter plug as required)
Earth ground

AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

■ LABEL CHECK

IMPORTANT

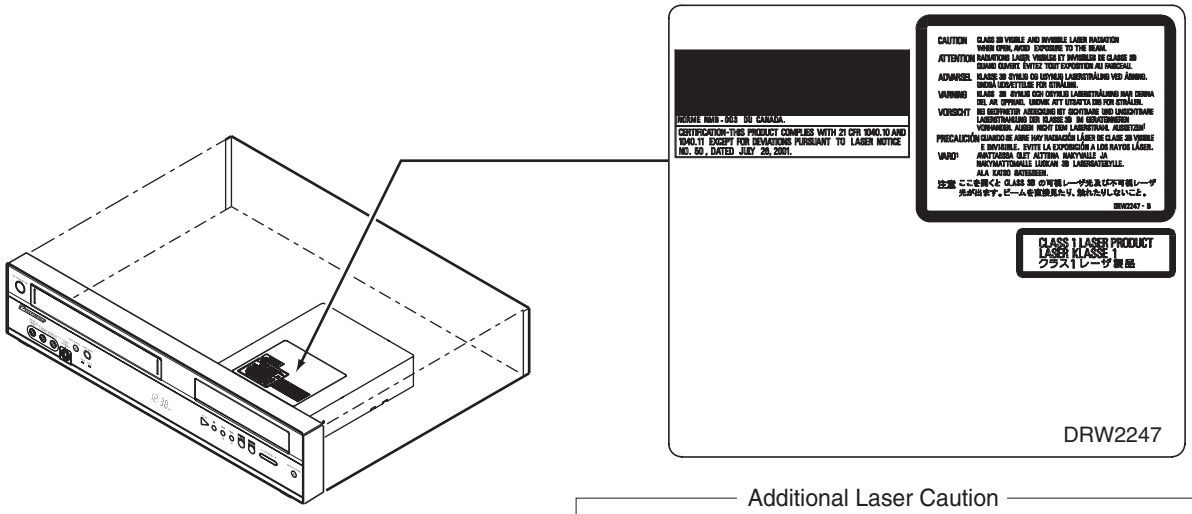
THIS PIONEER APPARATUS CONTAINS LASER OF CLASS 1.
SERVICING OPERATION OF THE APPARATUS SHOULD BE DONE BY A SPECIALLY INSTRUCTED PERSON.

LASER DIODE CHARACTERISTICS for DVD

MAXIMUM OUTPUT POWER: 100 mW
WAVELENGTH: 654 - 662 nm

LASER DIODE CHARACTERISTICS for CD

MAXIMUM OUTPUT POWER: 5 mW
WAVELENGTH: 770 - 810 nm



Additional Laser Caution

1. The ON/OFF(ON:low level,OFF:high level) status of the CLAMP signals for detecting the loading state are detected by the drive CPUs, and the design prevents laser diode oscillation when the CLAMP signal turns OFF.
   In normal operation, if no disc is clamped, the laser diode oscillation is disabled.
   However, the interlock does not always operate in the test mode.

2. When the cover is opened, close viewing of the objective lens with the naked eye will cause exposure to a Class 3A laser beam.

[Important Check Points for Good Servicing]

In this manual, procedures that must be performed during repairs are marked with the below symbol.
Please be sure to confirm and follow these procedures.

1. Product safety

Please conform to product regulations (such as safety and radiation regulations), and maintain a safe servicing environment by following the safety instructions described in this manual.

① Use specified parts for repair.

Use genuine parts. Be sure to use important parts for safety.

② Do not perform modifications without proper instructions.

Please follow the specified safety methods when modification(addition/change of parts) is required due to interferences such as radio/TV interference and foreign noise.

③ Make sure the soldering of repaired locations is properly performed.

When you solder while repairing, please be sure that there are no cold solder and other debris.
Soldering should be finished with the proper quantity. (Refer to the example)

④ Make sure the screws are tightly fastened.

Please be sure that all screws are fastened, and that there are no loose screws.

⑤ Make sure each connectors are correctly inserted.

Please be sure that all connectors are inserted, and that there are no imperfect insertion.

⑥ Make sure the wiring cables are set to their original state.

Please replace the wiring and cables to the original state after repairs.
In addition, be sure that there are no pinched wires, etc.

⑦ Make sure screws and soldering scraps do not remain inside the product.

Please check that neither solder debris nor screws remain inside the product.

⑧ There should be no semi-broken wires, scratches, melting, etc. on the coating of the power cord.

Damaged power cords may lead to fire accidents, so please be sure that there are no damages.
If you find a damaged power cord, please exchange it with a suitable one.

⑨ There should be no spark traces or similar marks on the power plug.

When spark traces or similar marks are found on the power supply plug, please check the connection and advise on secure connections and suitable usage. Please exchange the power cord if necessary.

⑩ Safe environment should be secured during servicing.

When you perform repairs, please pay attention to static electricity, furniture, household articles, etc. in order to prevent injuries.
Please pay attention to your surroundings and repair safely.

2. Adjustments

To keep the original performance of the products, optimum adjustments and confirmation of characteristics within specification.
Adjustments should be performed in accordance with the procedures/instructions described in this manual.

3. Lubricants, Glues, and Replacement parts

Use grease and adhesives that are equal to the specified substance.
Make sure the proper amount is applied.

4. Cleaning

For parts that require cleaning, such as optical pickups, tape deck heads, lenses and mirrors used in projection monitors, proper cleaning should be performed to restore their performances.

5. Shipping mode and Shipping screws

To protect products from damages or failures during transit, the shipping mode should be set or the shipping screws should be installed before shipment. Please be sure to follow this method especially if it is specified in this manual.

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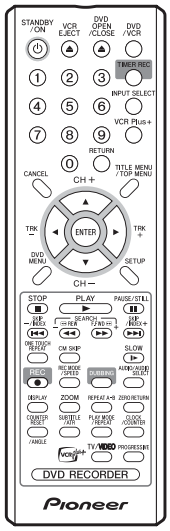
1. SPECIFICATIONS

G-1	**Outline of the product**				DVD-R/-RW Video Recorder & VHS Player/Recorder
G-2	**DVD System**	Color System			NTSC
		Disc Format	Rec		DVD-R/-RW
			Play		DVD-R/-RW, DVD-Video, CD-DA, CD-R/-RW
		Disc Diameter			120 mm, 80 mm
		Deck	Disc Loading System Motor		Front Disc Loading 3 Motors
		Rec Time (Approx.) at 4.7 GB Disc	XP SP LP EP		1 hour 2 hour 4 hour 6 hour
		Search speed		Actual	Fwd 4 step 2-45 times (DVD) 4-40 times (CD)
				Actual	Rev 4 step 2-45 times (DVD) 4-40 times (CD)
		Slow speed		Actual	Fwd 1/8-1/2 times – –
				Actual	Rev – – – –
G-3	**VCR System**	System			VHS Player / Recorder
		Video System			NTSC
		Hi-Fi STEREO			Yes
		NTSC PB (PAL 60Hz)			No
		Deck			OVD-7S
		Heads	Video Head		4 Head
			FM Audio Head		2 Head
			Audio / Control		Mono / Yes
			Erase (Full Track Erase)		Yes
			Erase (Normal Audio Track Erase)		No
		Tape Speed	Rec	PAL NTSC	– SP/EP
			Play	PAL NTSC	– SP/LP/EP
		Fast Forward / Rewind Time (Approx.) at 25°C with Cassette			FF : 1'48" / REW : 1'48" T-120
		Forward / Reverse Picture Search	NTSC or PAL-M PAL or SECAM		SP/LP/EP = 3x,5x / 7x,9x / 9x, 15x –
		Frame Advance			Yes
		Slow Speed			1/10

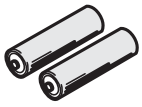
G-4	Tuning System	Broadcasting System		US System M
		Tuner and Receive CH	System	1 Tuner
			Destination	US (w/CATV)
			CH Coverage	2-69, 4A, A-5~A-1, A~I, J~W, W+1~W+84
		Intermediate Frequency	Picture (FP) Sound (FS) FP-FS	45.75 MHz 41.25 MHz 4.50 MHz
		Preset CH		–
		RF Converter Output		Yes
		Channel		3 or 4 ch
		Level/Impedance		66 dBu/75 ohm
		Sound Selector		No
		Stereo/Dual TV Sound		US-ST
		Tuner Sound Muting		Yes
G-5	Power	Power Source	AC DC	120V, 60Hz –
		Power Consumption	Stand by (FIP Off) Stand by (FIP On) Per Year	27W at 120V 60Hz 2.5W at 120V 60Hz 3.5W at 120V 60Hz -- W
		Protector	Power Fuse Safety Circuit IC Protector (Micro Fuse)	Yes Yes Yes
G-6	Regulation		Safety	UL/CSA (C-UL)
			Radiation	FCC/IC
			Laser	DHHS
G-7	Temperature		Operation	5°C - 35°C
			Storage	-20°C - 60°C
G-8	Operating Humidity			Less than 80% RH
G-9	Signal	Video Signal	Output Level	1 Vp-p / 75 ohm (DVD, VCR)
			S/N Ratio (Weighted)	65 dB (DVD-Video) 50 dB (VCR)
			Horizontal Resolution	500 Lines (DVD-Video) 230 Lines (VCR)
		RGB Signal	Output Level	--
		Audio Signal	Input Level Microphone	--
			Input Level Line	-8 dBm / 50 k ohm (VCR, 0 dBm = 0.775Vrms)
			Output Level Line	-8 dBm / 1k ohm (VCR, 0 dBm = 0.775Vrms) -12 dB / 1k ohm (DVD, -20 dBFs 0 dBFs = 2.0Vrms)
			Digital Output Level	0.5 Vp-p / 75 ohm (DVD)
			S/N Ratio at (Weighted)	90 dB (DVD-Video), 42 dB (VCR at SP)
			Harmonic Distortion (1 kHz) Typical	0.02% (DVD-Video), 1.5% (VCR at SP)
			Frequency Response : DVD Mode at DVD	4 Hz - 22 kHz
			DVD Mode at VIDEO CD	--
			DVD Mode at CD	4 Hz - 20kHz
			VCR Mode at SP	100 Hz - 10 kHz
			VCR Mode at LP	--
			VCR Mode at SLP(EP)	100 Hz - 4kHz
		Hi-Fi Audio Signal	Dynamic Range : More than	90 dB
			Frequency Response	20 Hz ~ 20 kHz
			Wow And Flutter : Less than	0.01 %Wrms
			Channel Separation : More than	60 dB
			Harmonic Distortion : Less than	1%

● Accessories

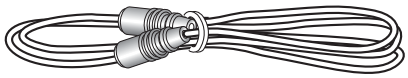
• Transmitter ×1
(076R0JZ040)



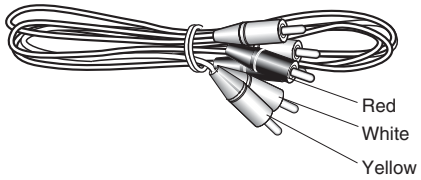
• Dry cell batteries ×2
(AAA/R03)



• RF antenna cable ×1
(06CPL02006)



• RCA Pin cable(L=1.2m) ×1
(red/white/yellow)
(06CPBA2006)

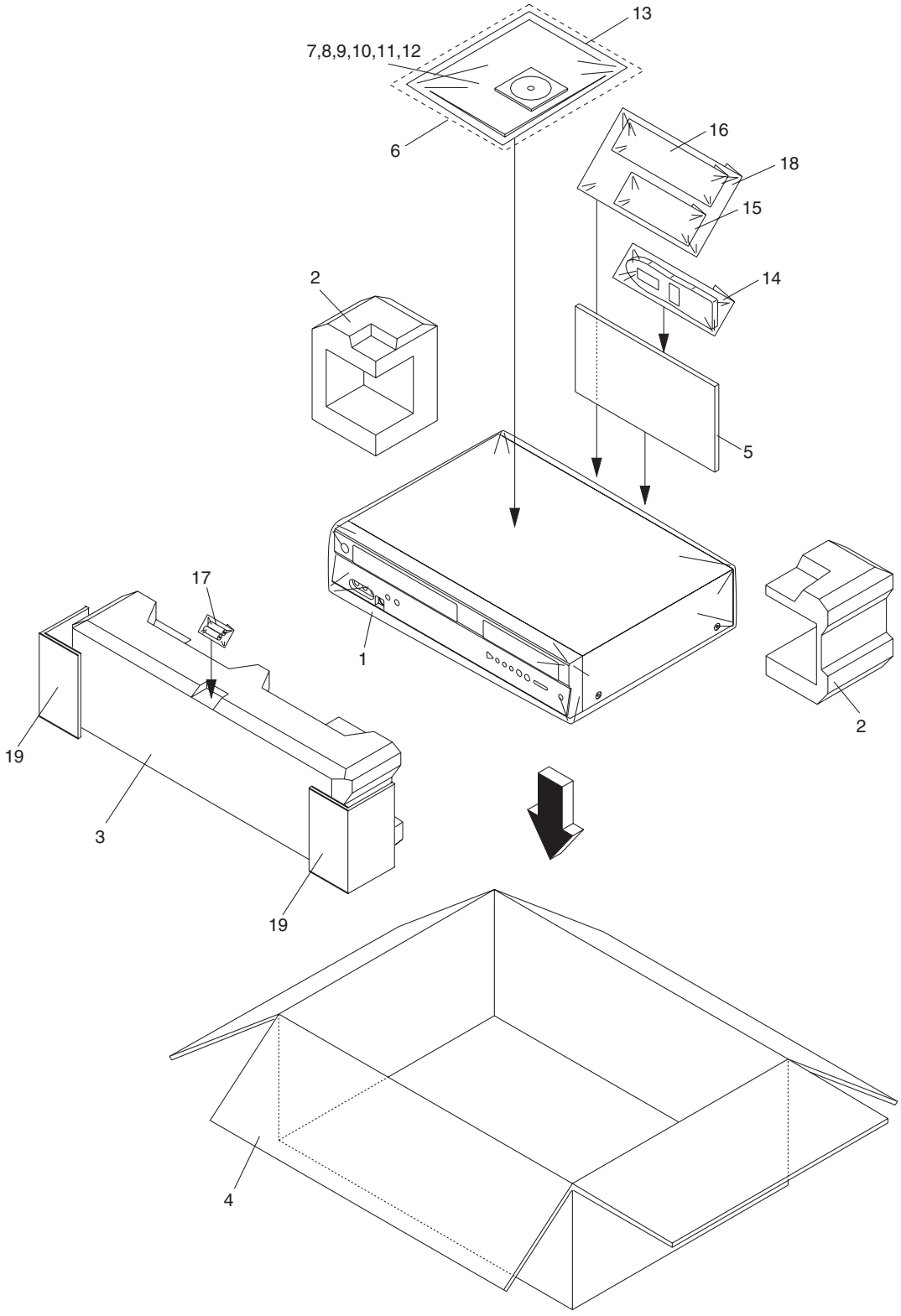


• Blank DVD-RW disc
• Warranty Card
• Operating Instructions
• Quick Start Guide

2. EXPLODED VIEWS AND PARTS LIST

NOTES:
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Screws adjacent to ▼ mark on product are used for disassembly.*
- *For the applying amount of lubricants or glue, follow the instructions in this manual. (In the case of no amount instructions, apply as you think it appropriate.)*

2.1 PACKING



PACKING parts List

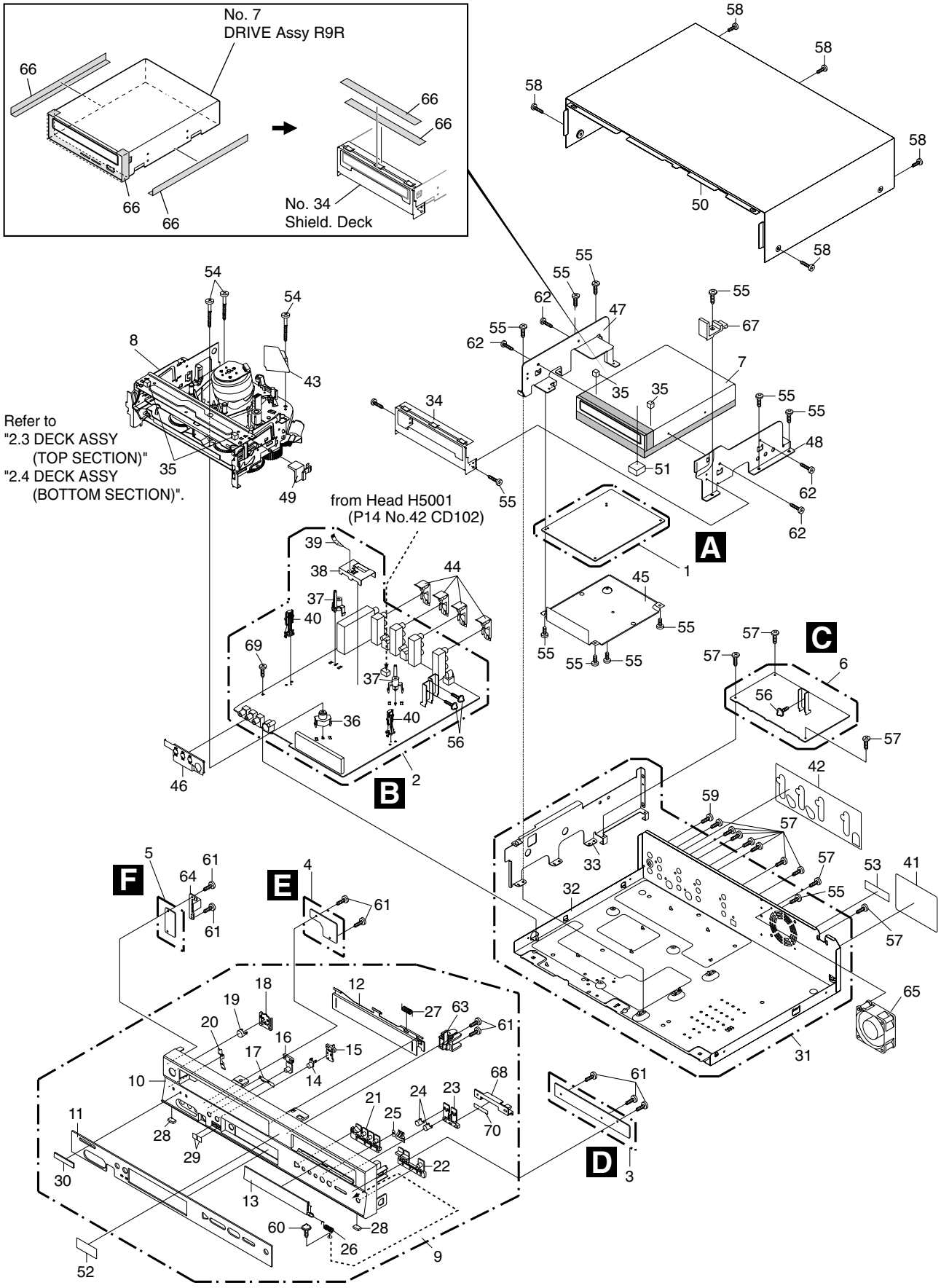
Mark	No.	Description	Part No.
	1	Gift Sheet	791WHA0100
	2	Package,Back	792WHA0617
	3	Package,Front	792WHA0616
	4	Gift Box	See Contrast table (2)
	5	Pad,DVD/VR (155 x 250)	795WCA0662
NSP	6	Instruction Book Kit	A2G002H975
	7	Instruction Book (English)	J2G00201A
	8	Instruction Book (French)	J2G00210A
	9	Information Sheet	J2G00229A
	10	Guarantee Card	J2G00202A
	11	Warning Sheet	J2G00228A
	12	Quick Start Guide	J2G00207A
	13	Polyethylene bag,Instruction	JB5KD500
	14	Transmitter (VXX3041)	076R0JZ040
	15	RF Antenna Cable	06CPL02006
	16	RCA Pin Cable	06CPBA2006
NSP	17	Battery Man Gan	141R004016
NSP	18	Polyethylene Bag	Y817041000
	19	Pad, Package	795WCA0680

(2) CONTRAST TABLE

DVR-RT501-S/KUCXTL and DVR-RT401-S/KUCXTL are constructed the same except for the following:

Mark	No.	Symbol and Description	DVR-RT501-S /KUCXTL	DVR-RT401-S /KUCXTL
	4	Gift Box	793WCD1625	793WCD1648

2.2 EXTERIOR SECTION



EXTERIOR SECTION parts List

Mark	No.	Description	Part No.
	1	DVD/HD MPEG PCB Assy	See Contrast table (2)
	2	VCR MT PCB Assy	A2G002H010
	3	OPERATION PCB 1 Assy	A2G002H270
	4	OPERATION PCB 2 Assy	A2G002H280
	5	OPERATION PCB 3 Assy	A2G002HDF0
	6	POWER PCB Assy	A2G002H240
	7	DRIVE Assy R9R (for Service)	VXX3060
	8	DECK Assy	A2G001H420A
	9	Front Cabi Assy	See Contrast table (2)
NSP	10	Cabinet, Front	See Contrast table (2)
NSP	11	Plate, Display	See Contrast table (2)
	12	Flap, VCR	See Contrast table (2)
	13	Flap, DVD	See Contrast table (2)
NSP	14	Button, Cap2	737WPE0031
NSP	15	Button, Select	738WPA0152
NSP	16	Button, Eject	738WPJ0006
	17	Spring, Earth 2	753WUA0071
NSP	18	Button, Power	738WPA0150
NSP	19	Button, Cap1	737WPE0030
	20	Spring, Earth 1	753WUA0070
NSP	21	Button, Frame-DVD1	738WPB0058
NSP	22	Button, Frame-DVD3	738WPB0059
NSP	23	Button, Frame-DVD2	738WPA0154
NSP	24	Button, Cap3	737WPE0032
	25	Spring, Earth 3	753WUA0072
	26	Spring, Flap-DVD	743WKA0053
	27	Spring, Flap	743WKA0037
	28	Cushion, Leg	800WFA0045
NSP	29	Sheet, LED	7230007878
NSP	30	Badge, Brand	726310003
	31	Bottom Cabi Assy	7G7610011A
	32	Plate, Bottom	761WSA0231
	33	Angle, Center	761WSA0227
	34	Shield, Deck	752WSA0484
	35	Cushion 65TS10-10 (17.5 x 20 x 14)	8965TS1017
	36	Holder, Deck	701WPA1363
	37	Holder, Deck	701WPA1364
	38	Shield, Case Head Amp	752WSA0230
	39	Spring, Earth Head Amp	753WUAA006
	40	Holder, End Sensor	85OP700038
	41	Sheet, Rating	See Contrast table (2)
	42	Sheet, Jack	See Contrast table (2)
	43	Cover, AC Head	752WSA0275
	44	Shield, COMPO	752WSA0290
	45	Shield, MPEG	752WSA0391
	46	Shield, Jack	752WUA0011
	47	Angle, DVD (L)	761WSA0228
	48	Angle, DVD (R)	761WSA0229
	49	Holder, Top	761WPA0384
	50	Cabinet, Top	702WSB0122
	51	Cushion 65TS10-5 (15 x 20 x 16)	8109130B9U
NSP	52	POP Label	7236310016
	53	Sheet, Serial	7220001204
	54	Screw	8109130B7U
	55	Screw	810923070U
	56	Screw	8109I30A0U
	57	Screw	810923080U
	58	Screw	8109K3060U
	59	Screw	810723040U
	60	Screw	8110E2680U
	61	Screw	811022680U
	62	Screw	810223060U
	63	Holder, DVD	761WPA0375
	64	Holder, Deck	761WPA0398
	65	Fan Motor	1519X56L04
NSP	66	Tape	ZTA-570F-190BK
	67	Holder, Bottom	761WPA0408
NSP	68	Holder, Tag	761WPA0397
	69	Screw	810923053U
NSP	70	Security Tag	See Contrast table (2)

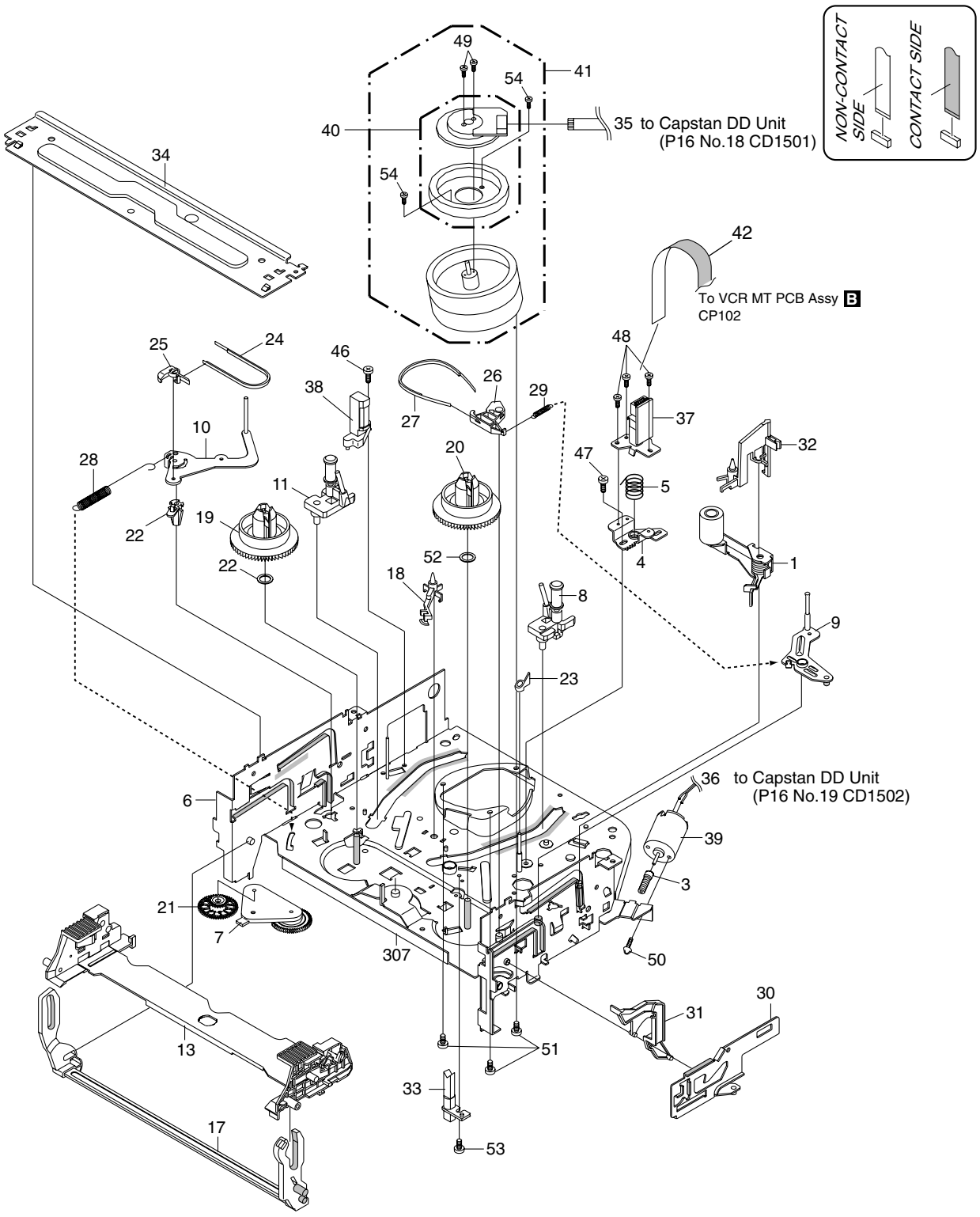
(2) CONTRAST TABLE

DVR-RT501-S/KUCXTL and DVR-RT401-S/KUCXTL are constructed the same except for the following:

Mark	No.	Symbol and Description	DVR-RT501-S /KUCXTL	DVR-RT401-S /KUCXTL
	1	DVD/HD MPEG PCB Assy	A2G002HB10*	A2G003HB10*
	9	Front Cabi Assy	7A7010093A	7A7010111A
NSP	10	Cabinet, Front	701WPJ1331	701WPJ1356
NSP	11	Plate, Display	711WPD0675	711WPD0676
	12	Flap, VCR	712WPJ0912	712WPJ0935
	13	Flap, DVD	712WPJ0913	712WPJ0936
	41	Sheet, Rating	7226310009	7226310018
	42	Sheet , Jack	7230007946	7230007947
NSP	70	Security Tag	Not used	7230007398

* The DVD/HD MPEG PCB Assy diffrence is only EEPROM (IC4002) setting data. Refer to P.95.

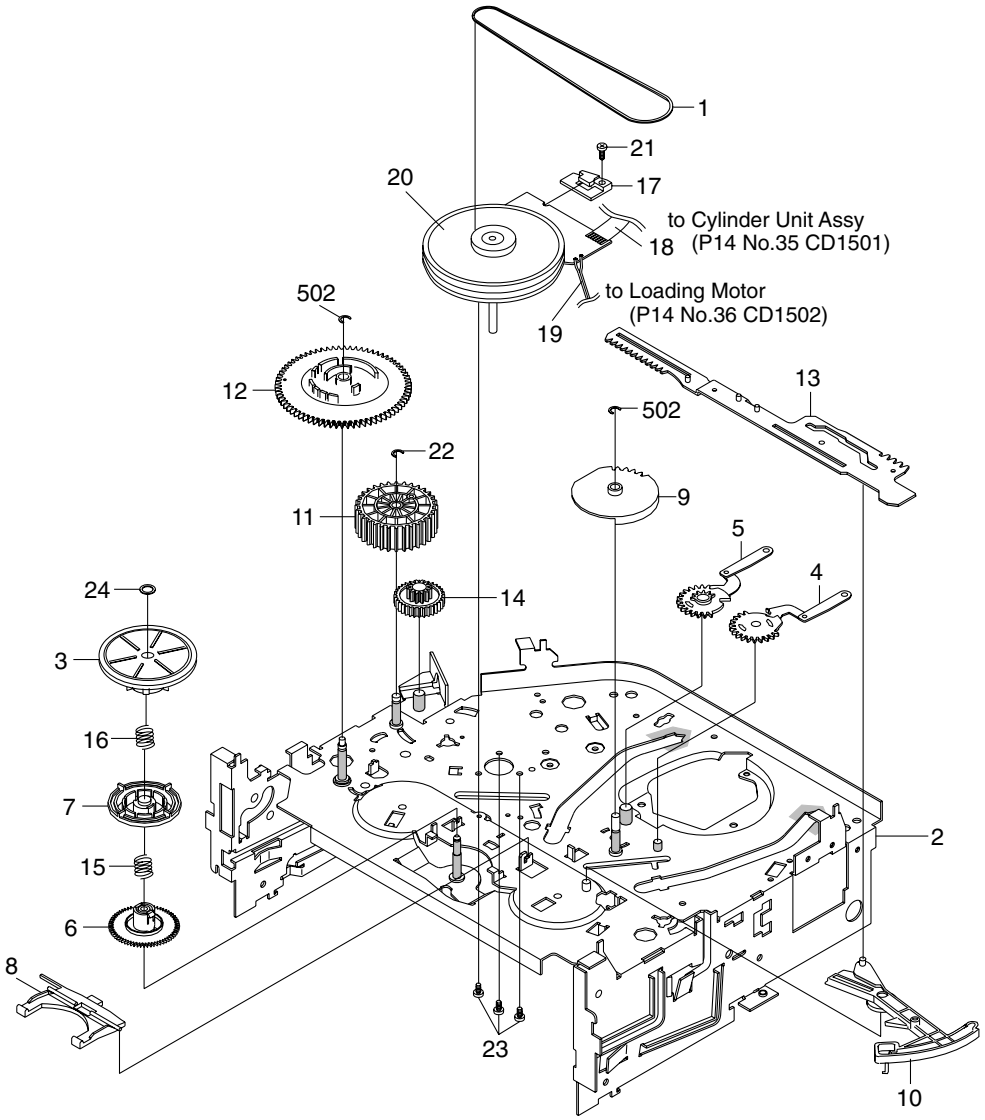
2.3 DECK ASSY (TOP SECTION)


NON-CONTACT SIDE
CONTACT SIDE
35 to Capstan DD Unit (P16 No.18 CD1501)
To VCR MT PCB Assy B CP102
36 to Capstan DD Unit (P16 No.19 CD1502)
307

DECK ASSY (TOP SECTION) parts List

Mark	No.	Description	Part No.
	1	Pinch Roller Block VA2	85OA400245
	2	•••••••	
	3	Worm	85OP600581
	4	Base, AC Head	85OP500091
	5	Spring, AC Head	85OP800324
	6	Main Chassis Assy	85OA000529
	7	Arm Idler Assy	85OA200092
	8	Inclined Base T Unit 3S	85OA400223
	9	P5 Arm Assy 2	85OA400249
	10	Tension Arm Assy 2	85OA400248
	11	Inclined Base S Unit	85OA400231
	12	•••••••	
	13	Cass, Holder Assy	85OA900236
	14	•••••••	
	15	•••••••	
	16	•••••••	
	17	Link Unit	85OA900233
	18	Post, Cass Guide	85OP000496
	19	Reel, S (S)	85OP200316
	20	Reel, T (S)	85OP200317
	21	Gear, Idler	85OP200308
	22	Holder, Tension	85OP400492
	23	Cap. P4	85OP400520
	24	Band, Tension	85OP400542
	25	Connect, Tension	85OP400533
	26	Arm, Brake T	85OP600573
	27	Band, Brake T	85OP600584
	28	Spring, Tension	85OP800322
	29	Spring, Brake T	85OP800360
	30	Lever, Link	85OP900754
	31	Lever, Flap	85OP900759
	32	Cass, Opener	85OP900745
	33	Reflector, LED	85OP700035
	34	Bracket, Top	85OP900756
	35	Cord Jumper (CD1501)	122H071704
	36	Cord Jumper (CD1502)	122Y021902
	37	Head (Audio Control)(H5001)	1523Q91003
	38	Head (Full Erase)(H5002)	1543Q02014
⚠	39	Motor, Loading (M101)	1596S98002
	40	Micro Motor (M2003)	1589S11025
⚠	41	Cylinder Unit Assy (UN4001)	A2G001H500
	42	Cord Jumper (CD102)	122F041508
	43	•••••	
	44	•••••	
	45	•••••	
	46	Screw	810722680U
	47	Screw	810722640U
	48	Screw	810212060U
	49	Screw	810912660U
	50	Screw/Washer (A)	810A13040U
	51	Screw/Washer (A)	810A12650U
	52	Polyslider Washer	82Q264713N
	53	Screw	810722660U

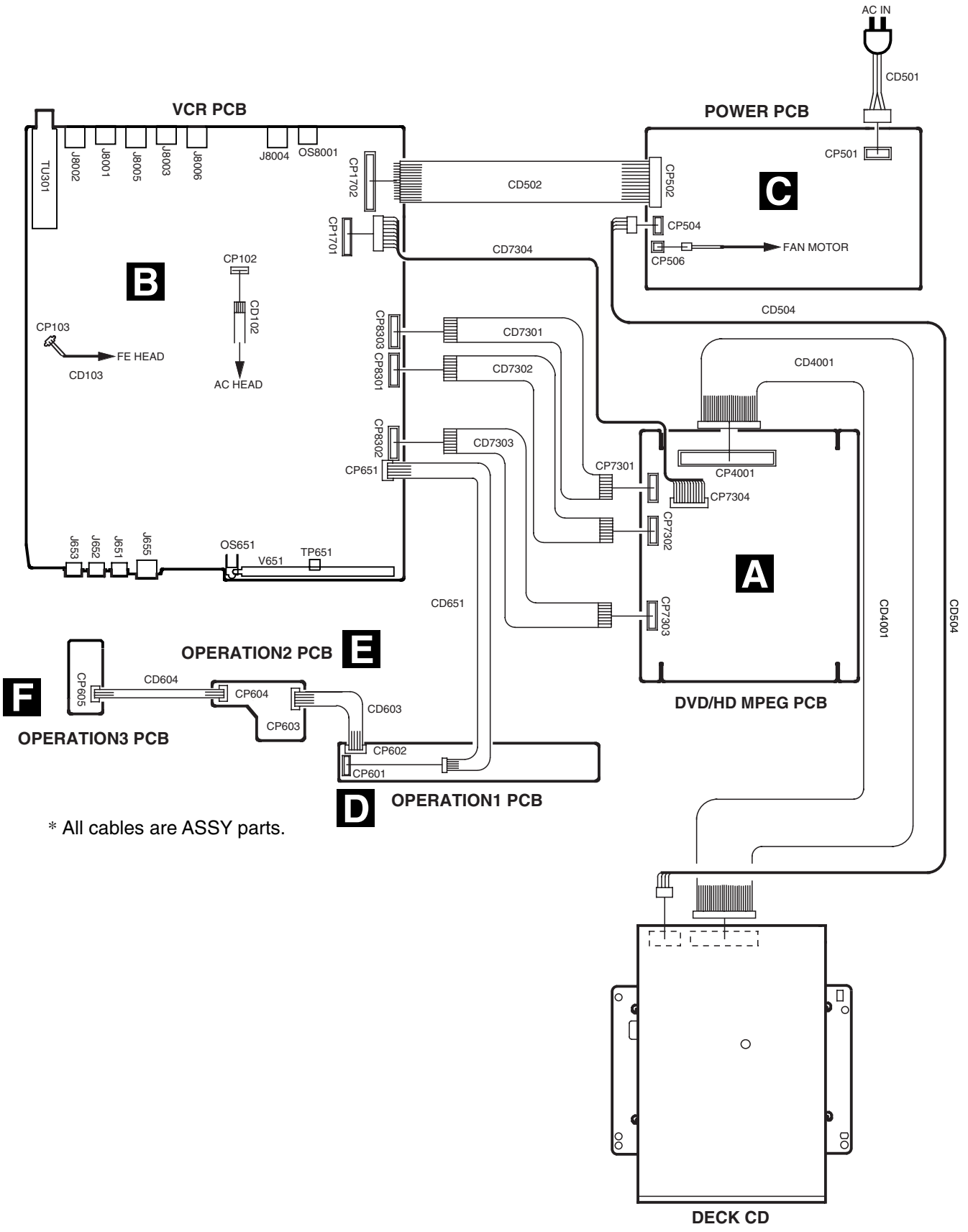
2.4 DECK ASSY (BOTTOM SECTION)



DECK ASSY (BOTTOM SECTION) parts List

Mark	No.	Description	Part No.
	1	Belt, Capstan (S)	85OP200290
	2	Main Chassis Assy	85OA000529
	3	Clutch Assy	85OA200089
	4	Loading Arm S Unit	85OA300068
	5	Loading Arm T Unit	85OA300070
	6	Gear, Clutch	85OP200311
	7	Gear, Coupling	85OP200312
	8	Lever, Clutch	85OP200313
	9	Gear, Main Loading	85OP300194
	10	Lever, Tension	85OP400490
	11	Cam, Pinch Roller	85OP600577
	12	Cam, Main	85OP600578
	13	Rod, Main	85OP600585
	14	Gear, Joint	85OP600582
	15	Spring, Coupling	85OP800355
	16	Spring, Ring	85OP800356
	17	Holder, Capstan	85OP400554
	18	Cord Jumper (CD1501)	122H071704
	19	Cord Jumper (CD1502)	122Y021902
⚠	20	Capstan DD Unit (M2001)	1510S98044
	21	Screw, Tap Tite(S) Bind	810722680U
	22	E-Ring	83ETW30000
	23	Screw	810912660U
	24	Polyslider Washer	82P184505N

2.5 WIRING CABLE



* All cables are ASSY parts.

A

B

C

D

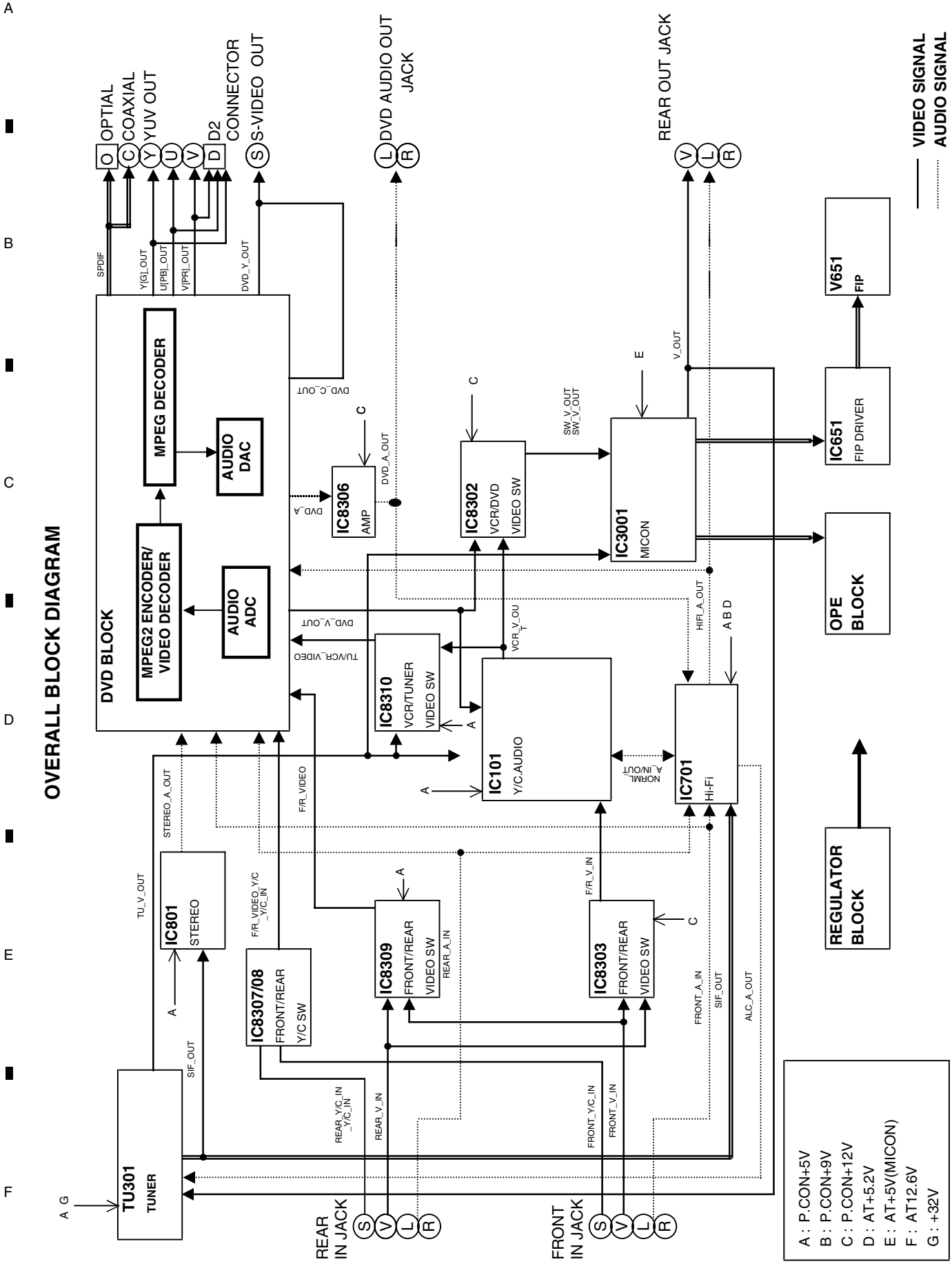
E

F

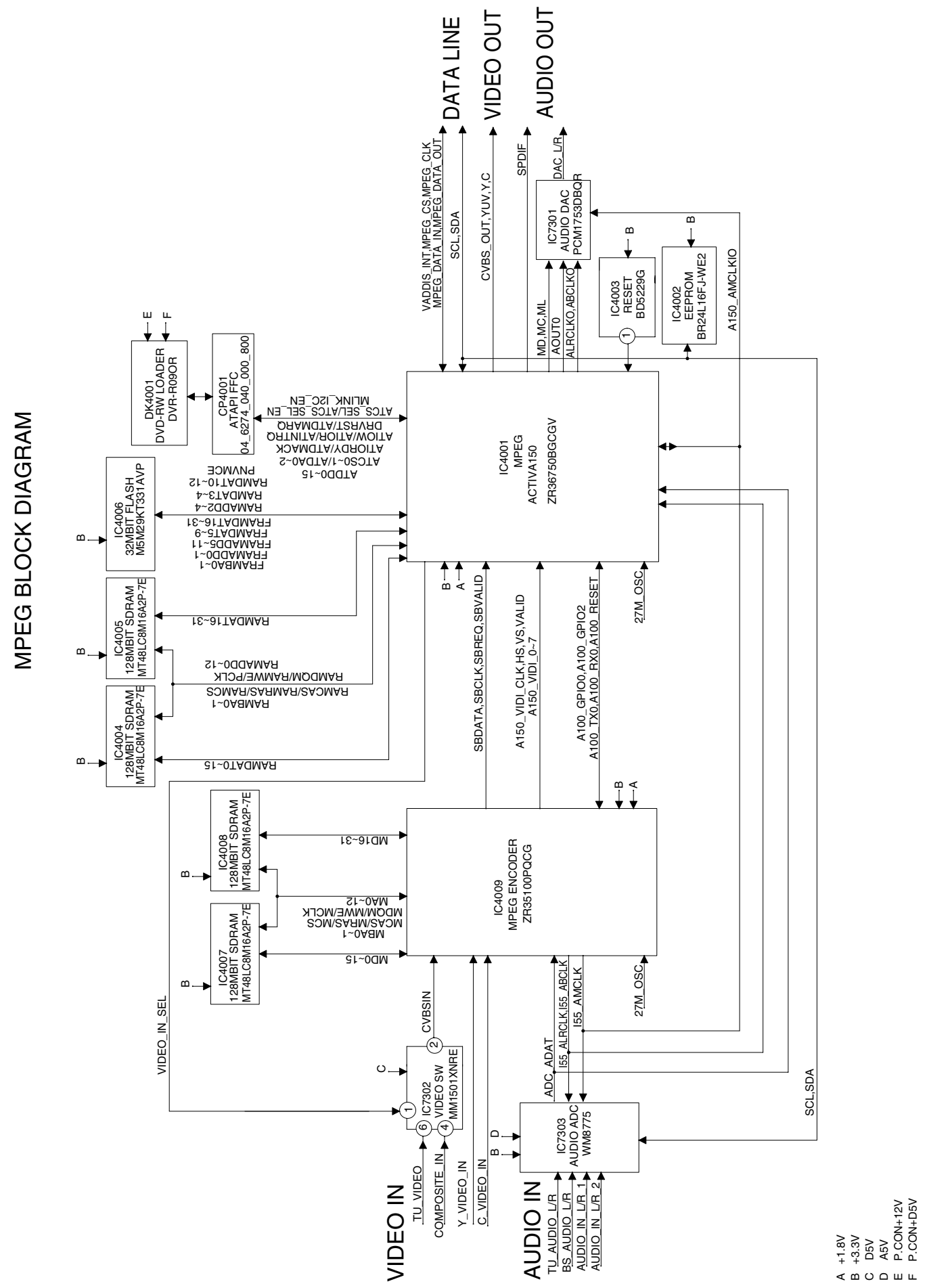
3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

3.1 BLOCK DIAGRAM

3.1.1 OVERALL BLOCK DIAGRAM

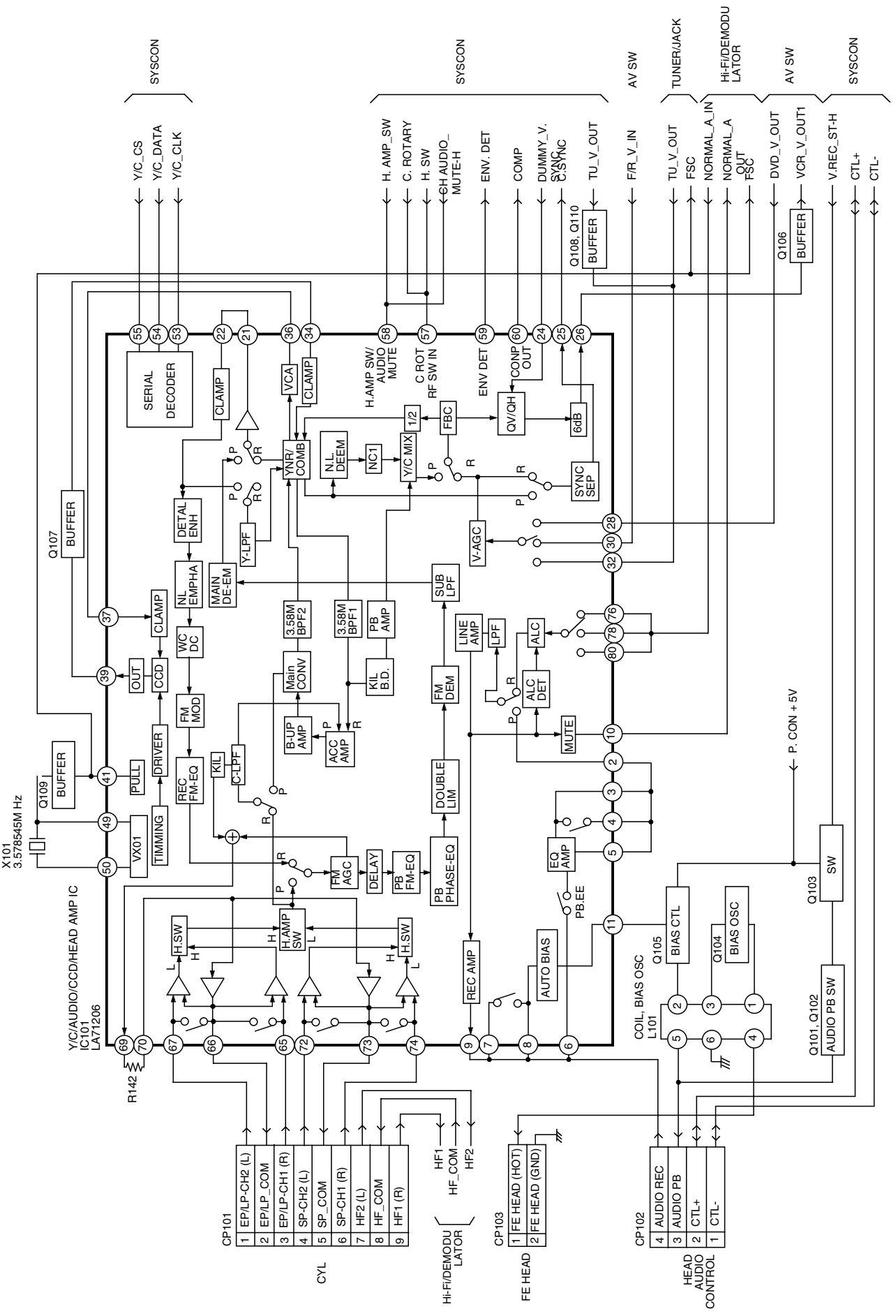


3.1.2 MPEG BLOCK BLOCK DIAGRAM

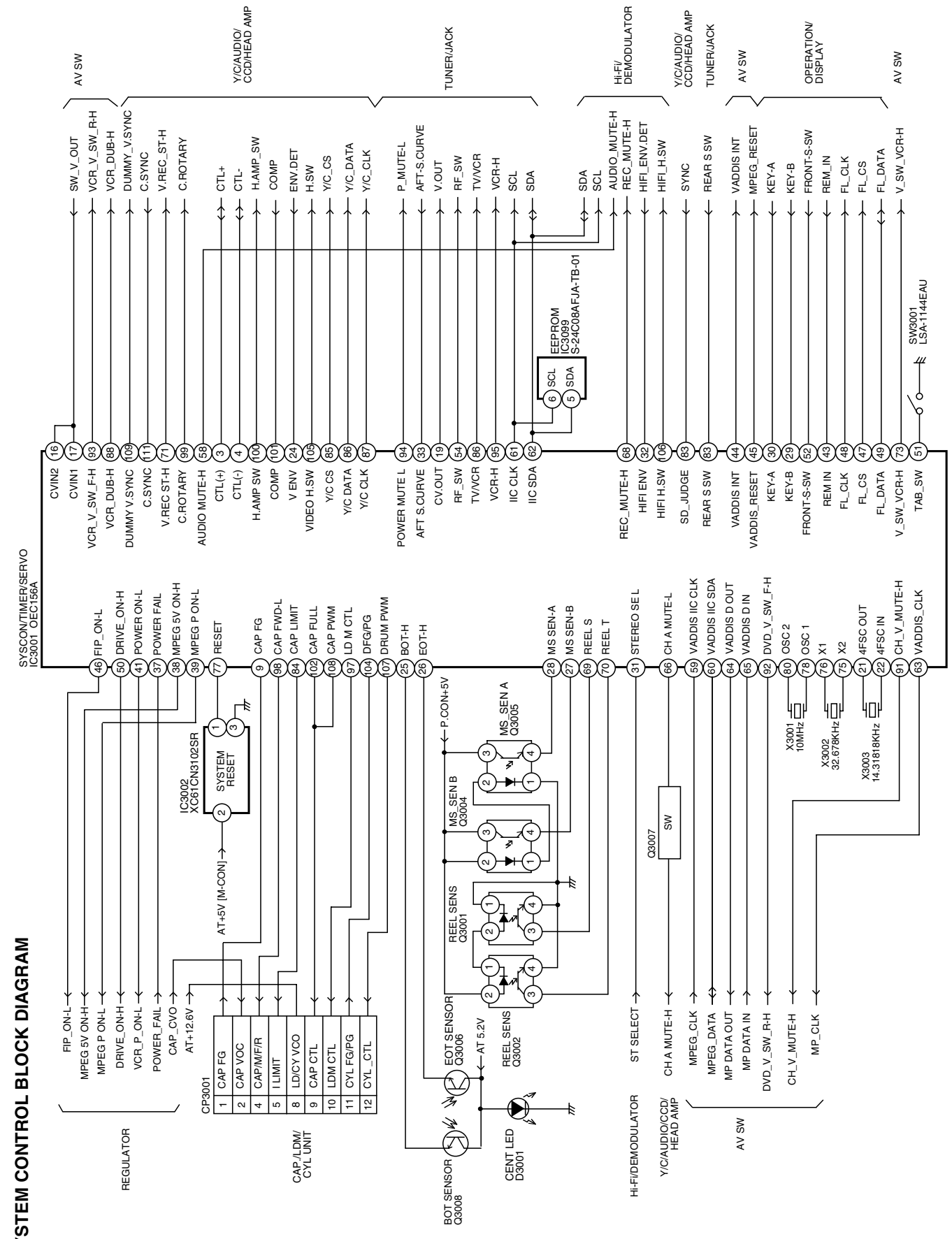


3.1.3 Y/C AUDIO / CCD / HEAD AMP BLOCK DIAGRAM

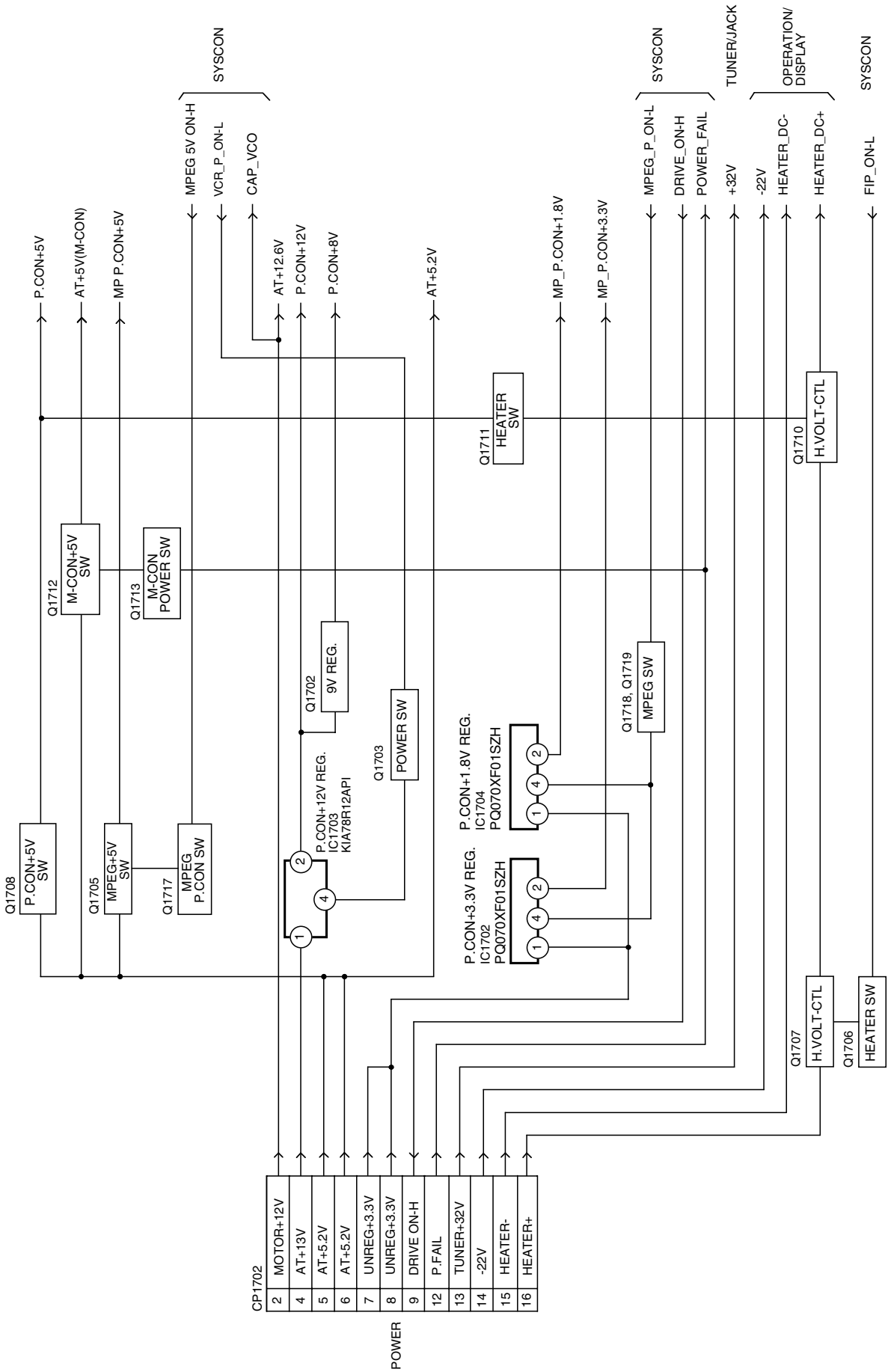
Y/C/AUDIO/CCD/HEAD AMP BLOCK DIAGRAM



3.1.4 SYSTEM CONTROL BLOCK DIAGRAM

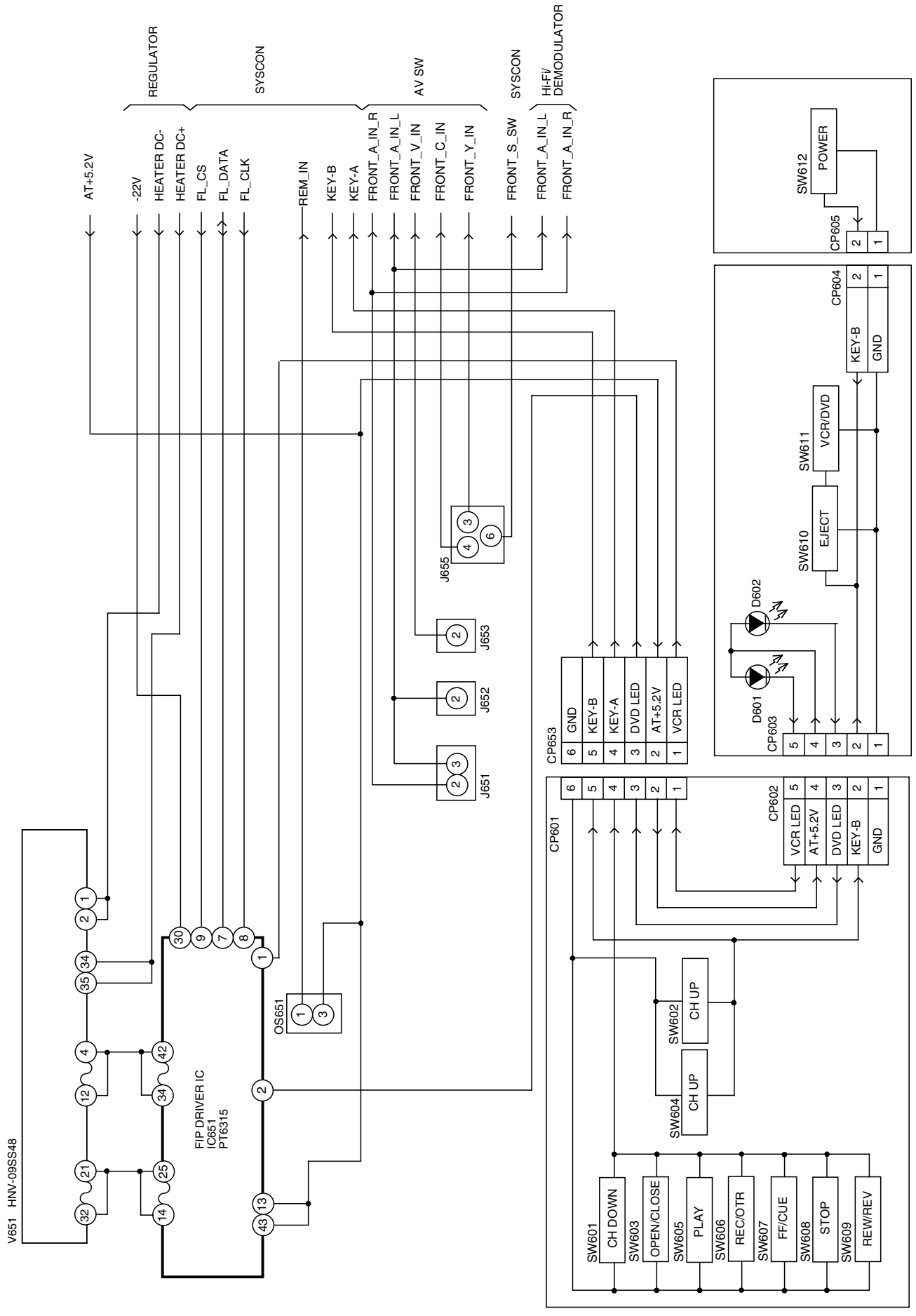


3.1.5 REGULATOR BLOCK DIAGRAM

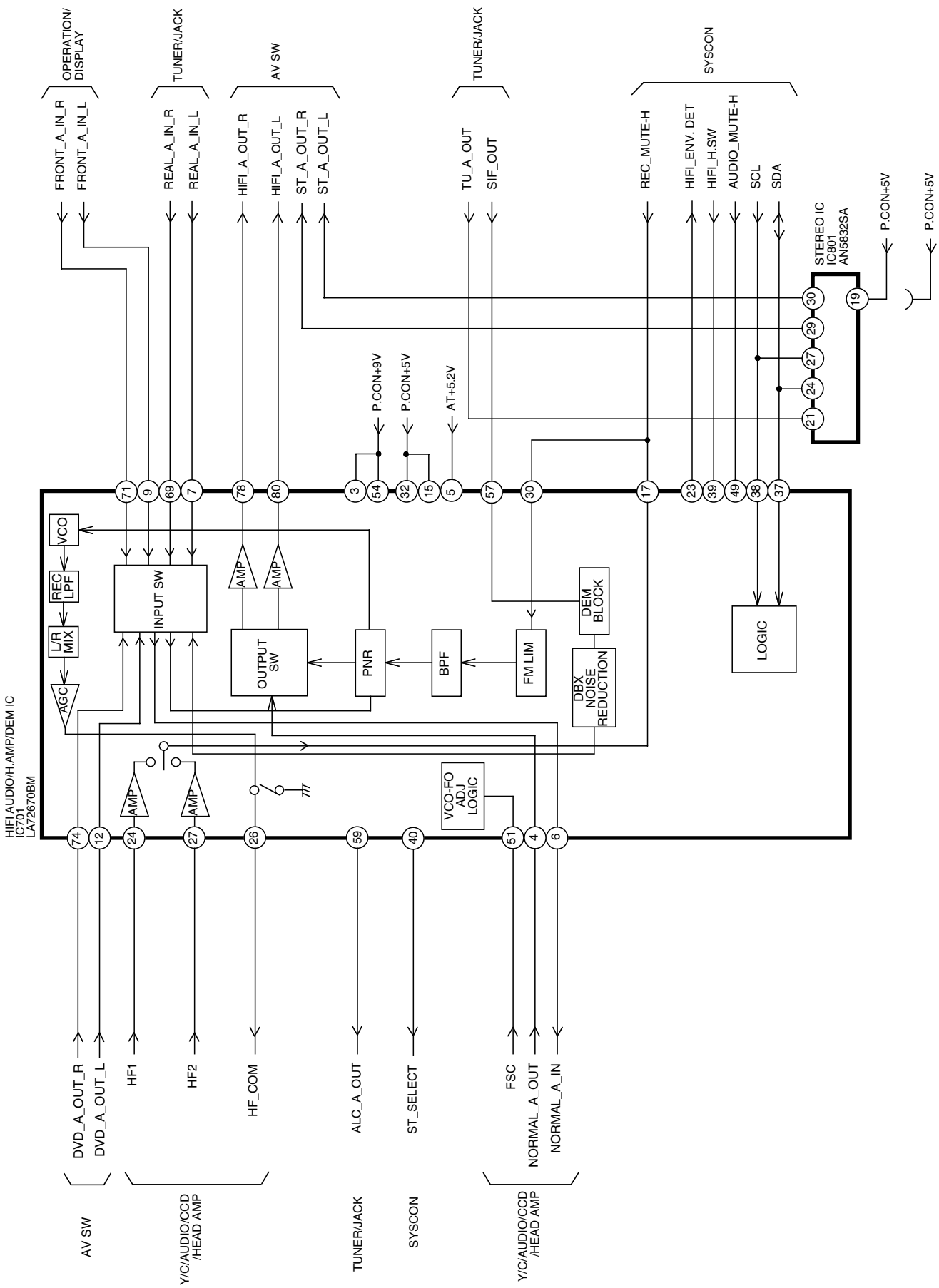


3.1.6 OPERATION / DISPLAY BLOCK DIAGRAM

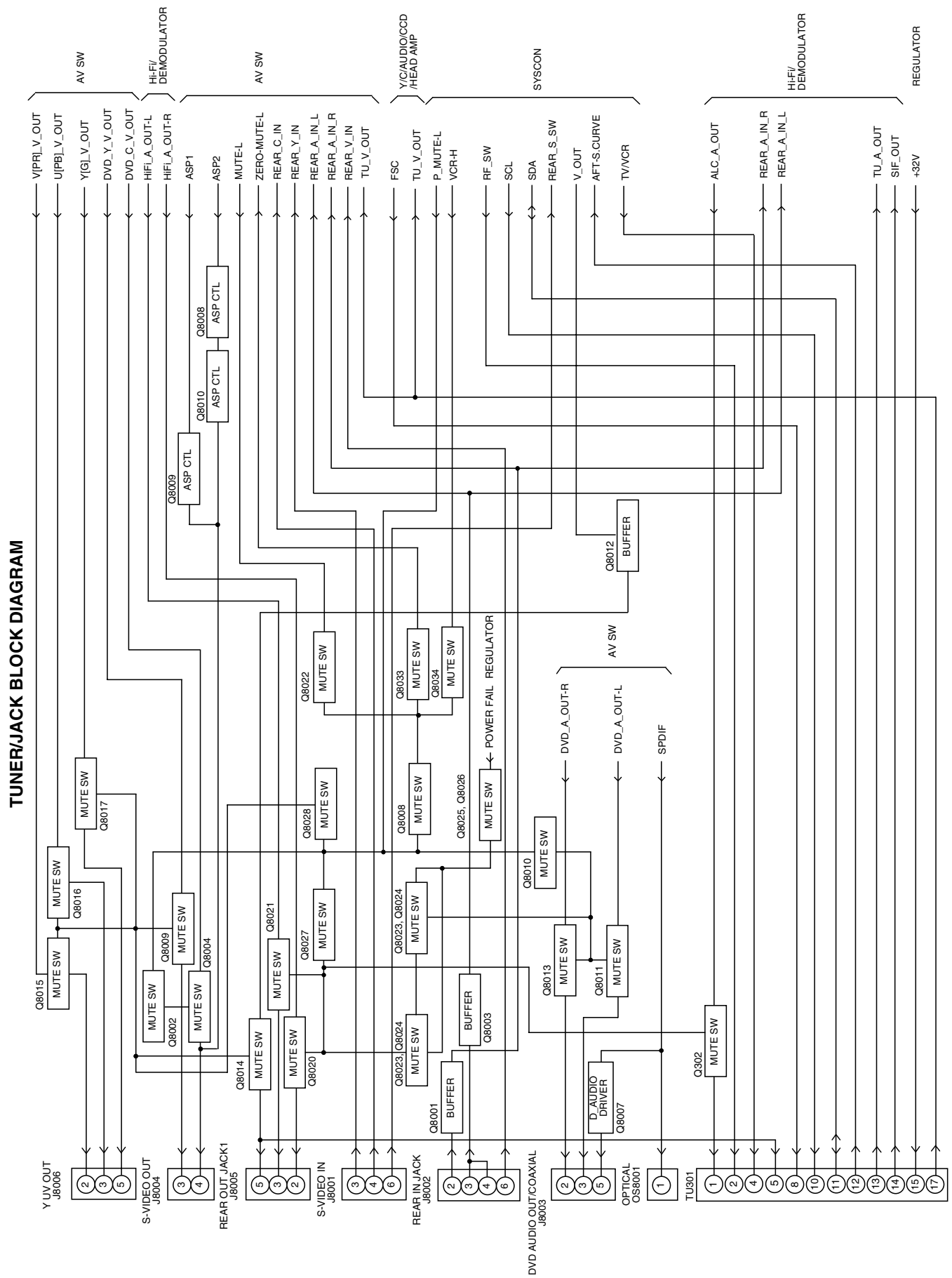
OPERATION/DISPLAY BLOCK DIAGRAM



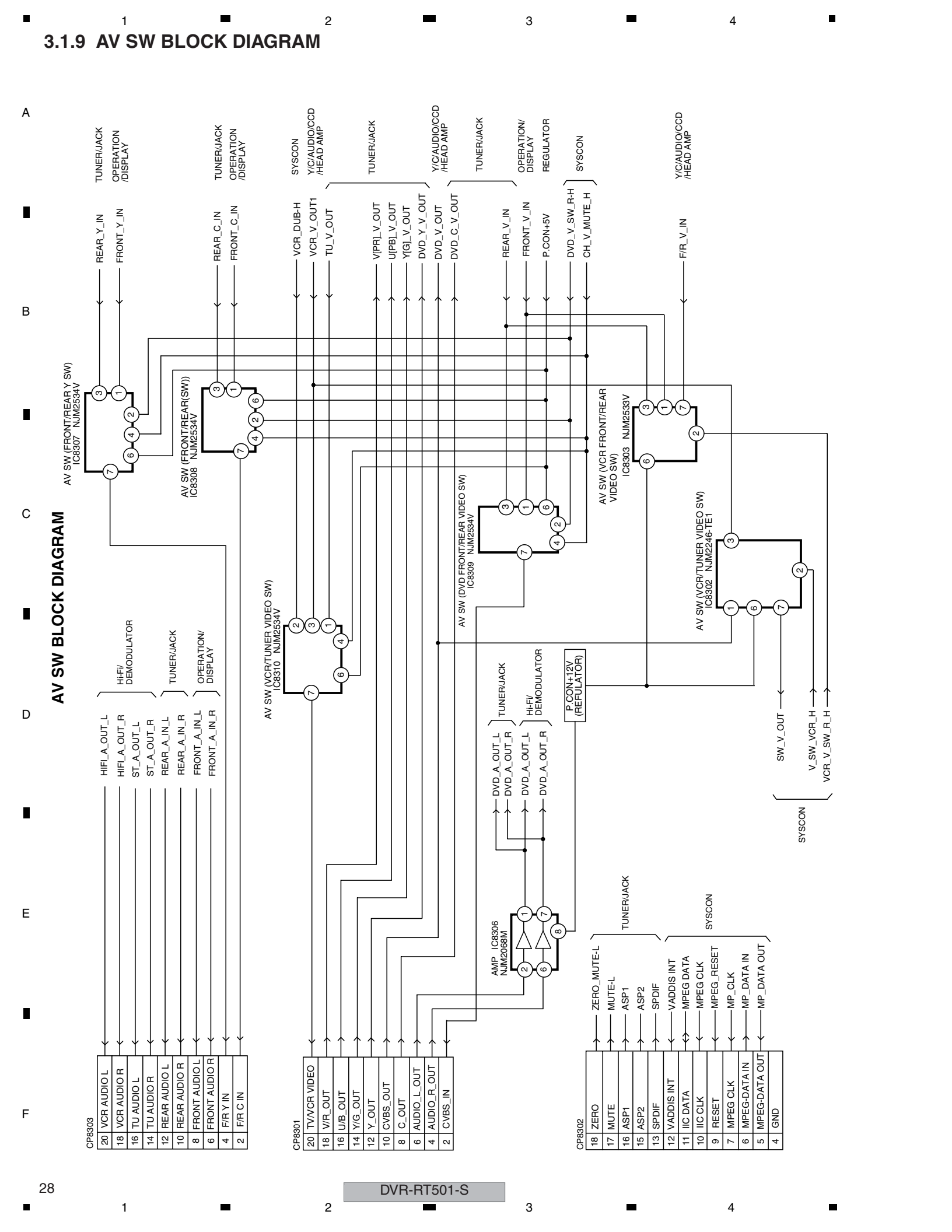
3.1.7 HiFi / DEMODULATOR BLOCK DIAGRAM



3.1.8 TUNER / JACK BLOCK DIAGRAM

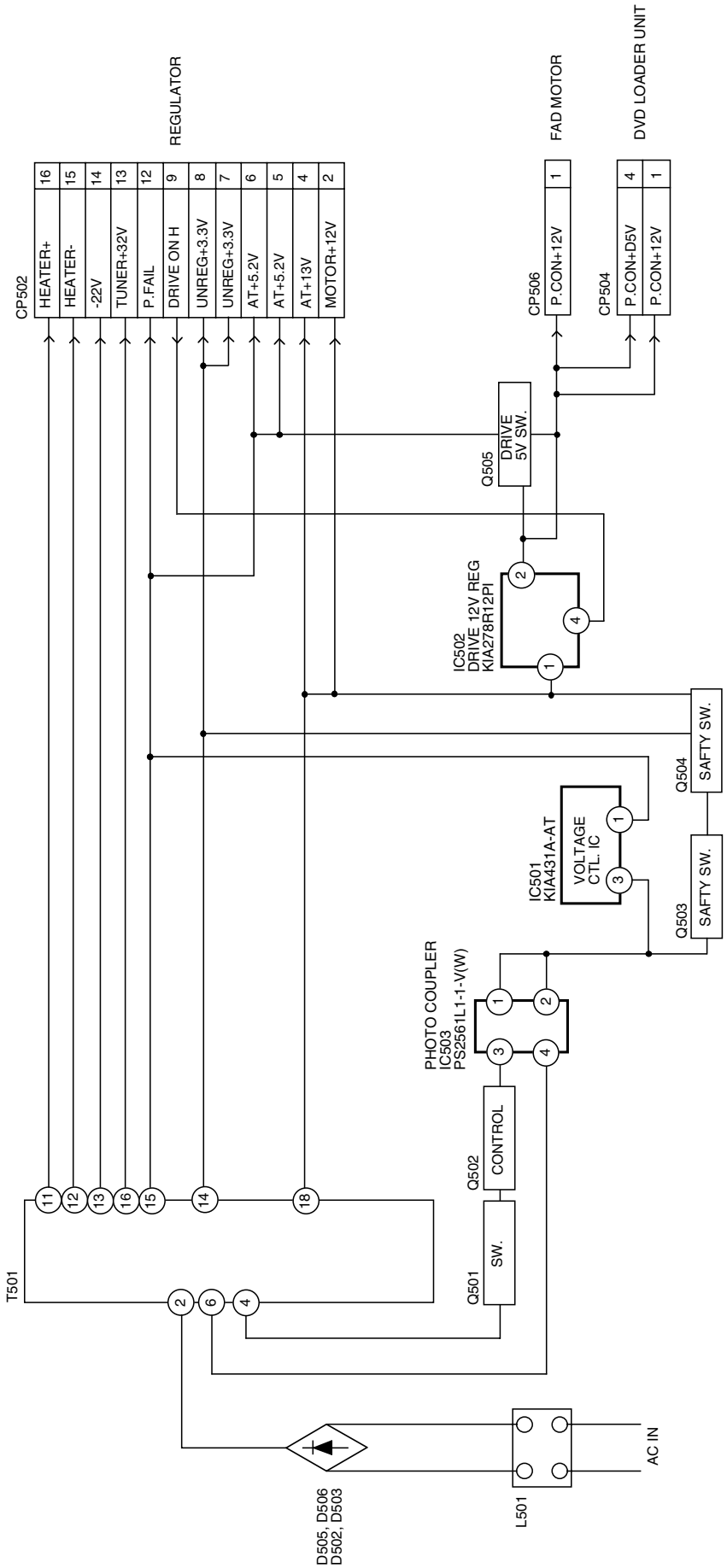


3.1.9 AV SW BLOCK DIAGRAM

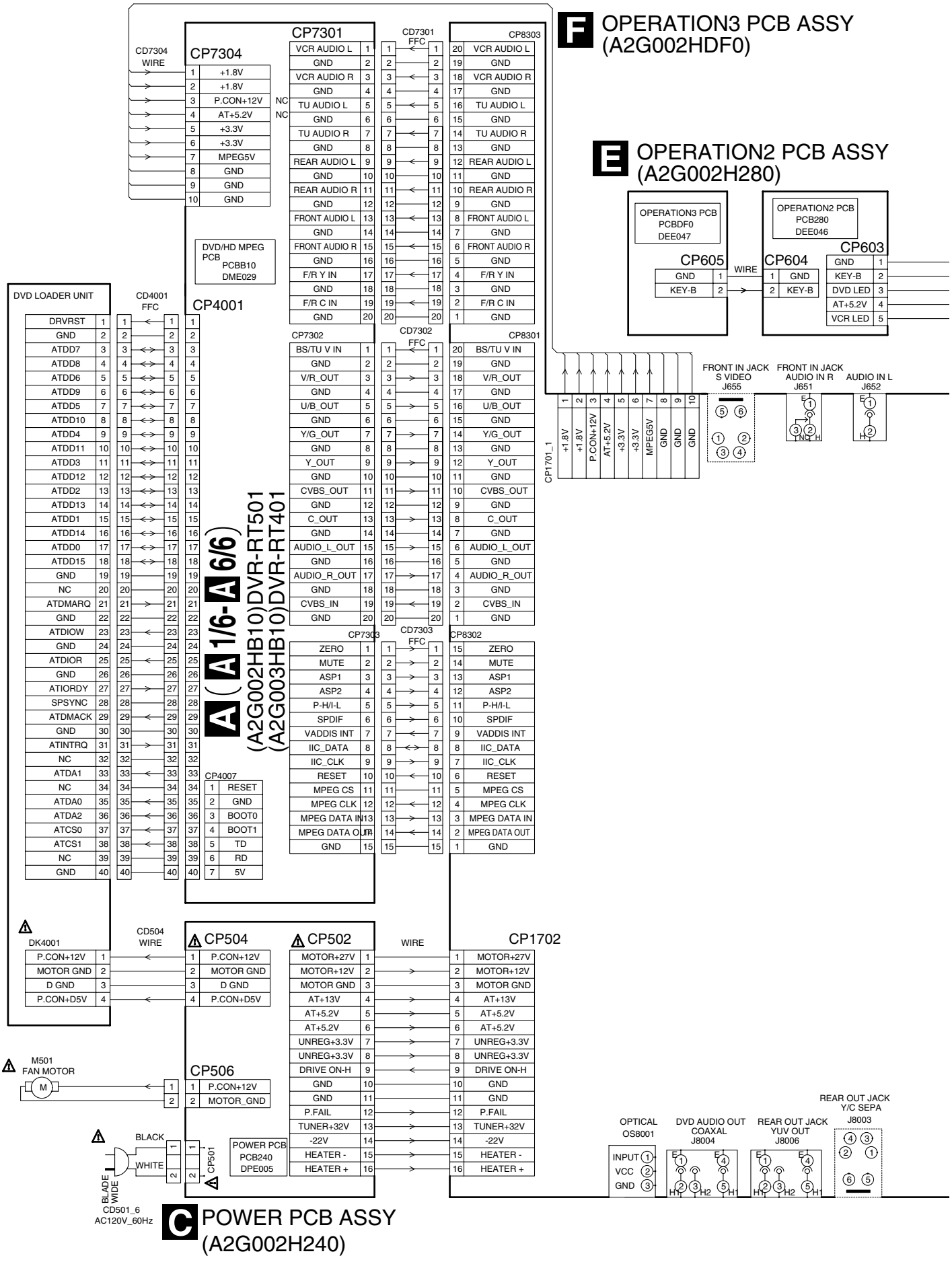


3.1.10 POWER BLOCK DIAGRAM

POWER BLOCK DIAGRAM

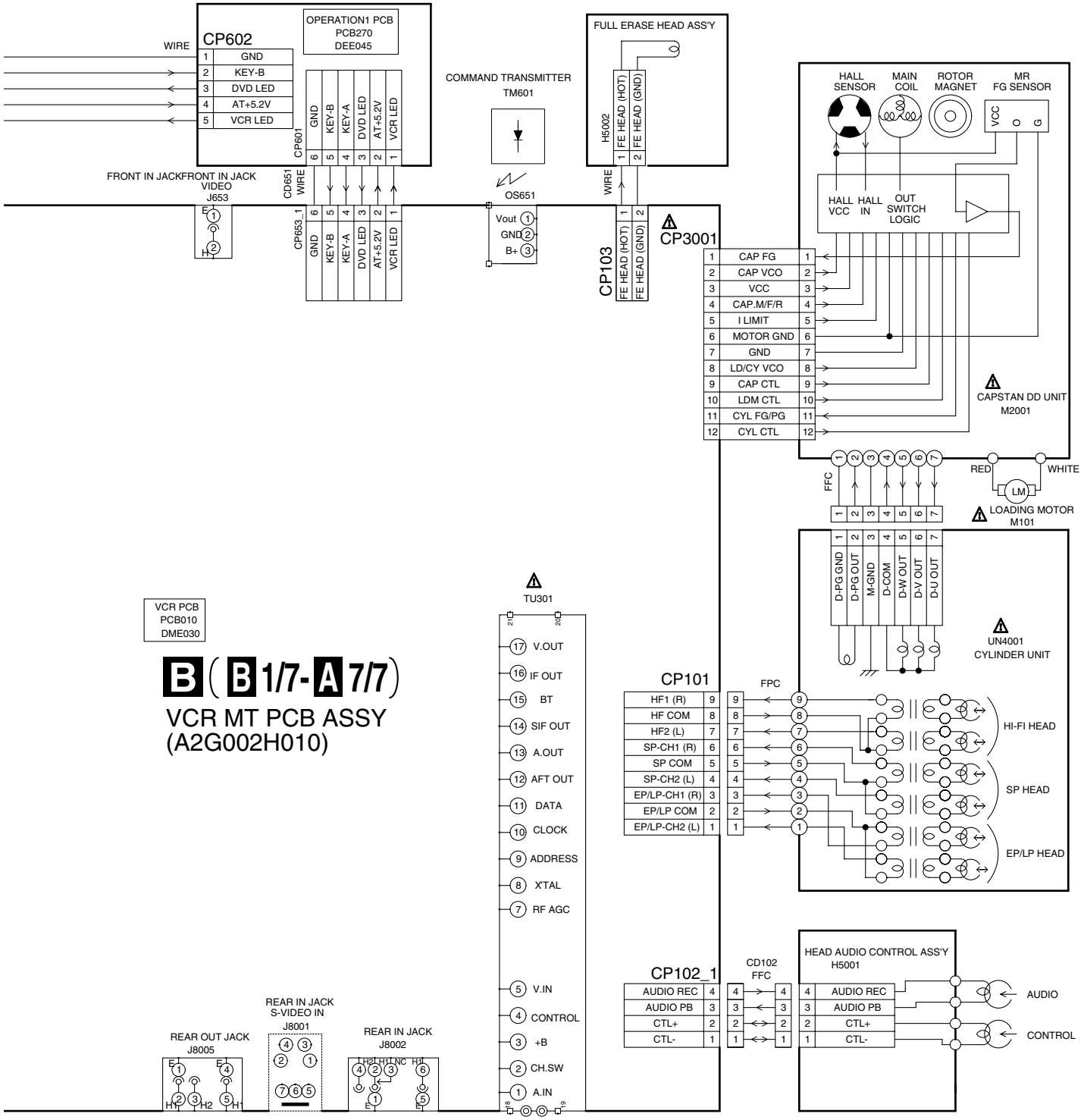


3.2 OVERALL WIRING DIAGRAM



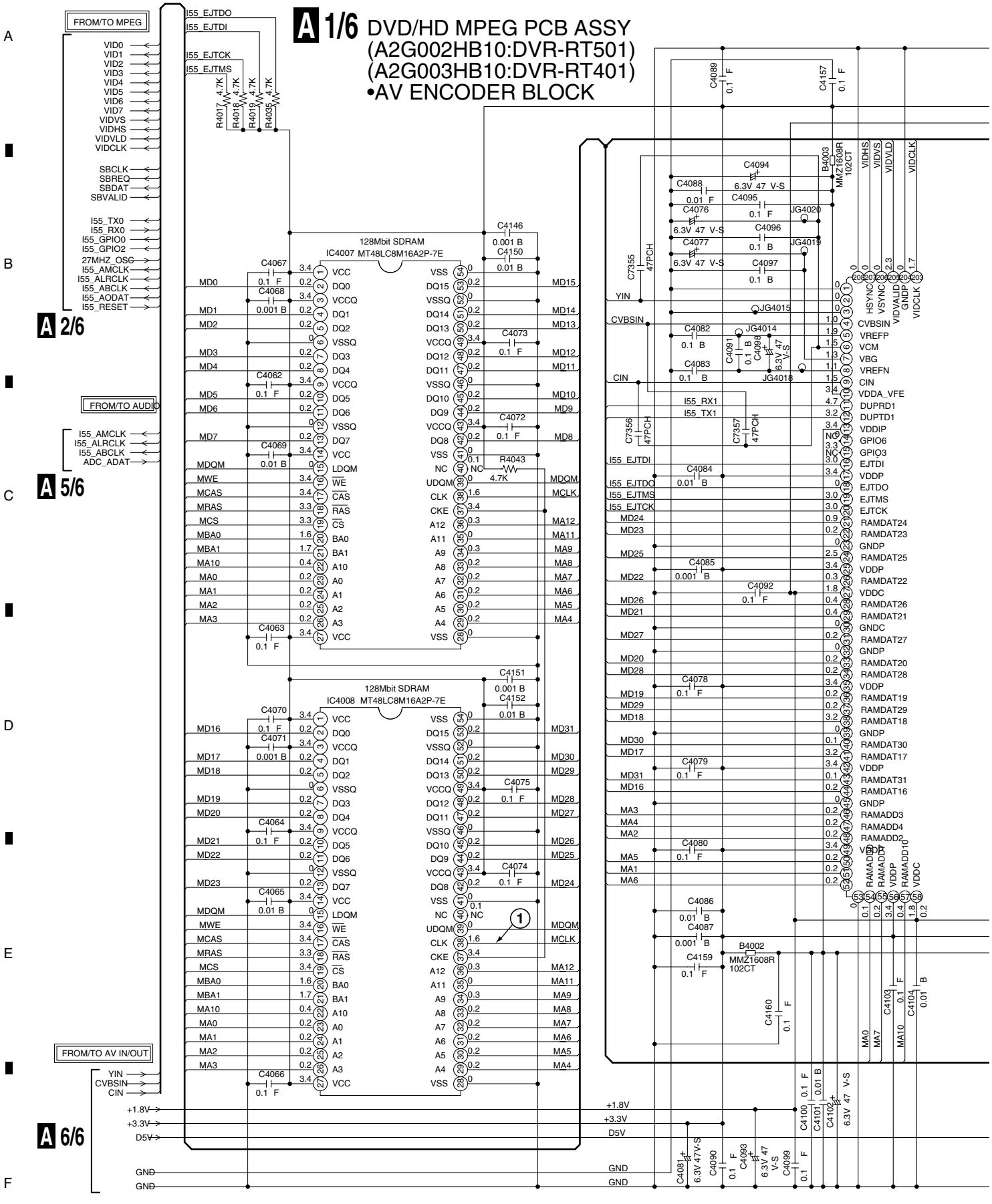
- When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- ⬭ : The power supply is shown with the marked box.

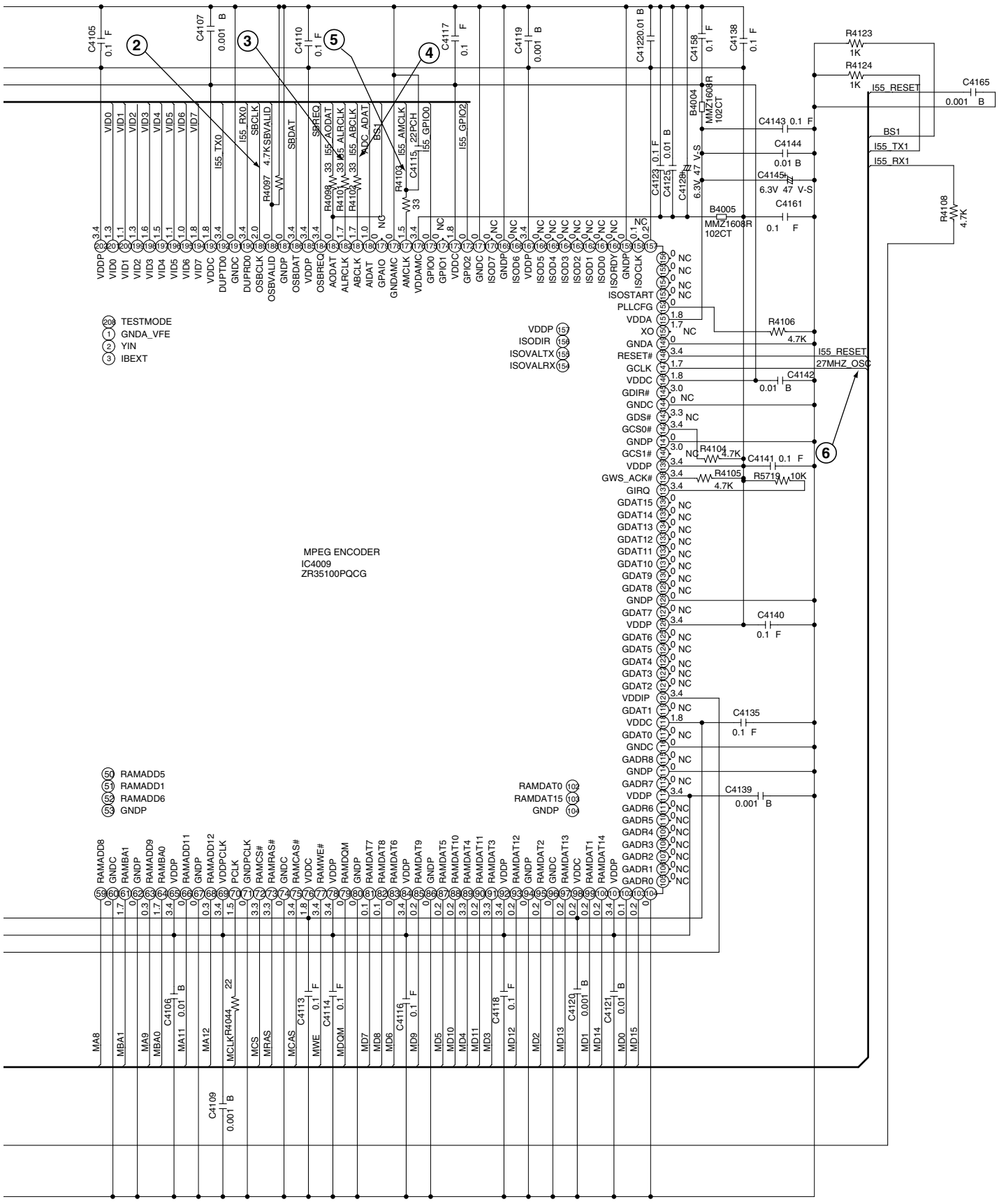
D OPERATION1 PCB ASSY (A2G002H270)



B (B 1/7-A 7/7) VCR MT PCB ASSY (A2G002H010)

3.3 DVD/HD MPEG PCB ASSY(1/6)

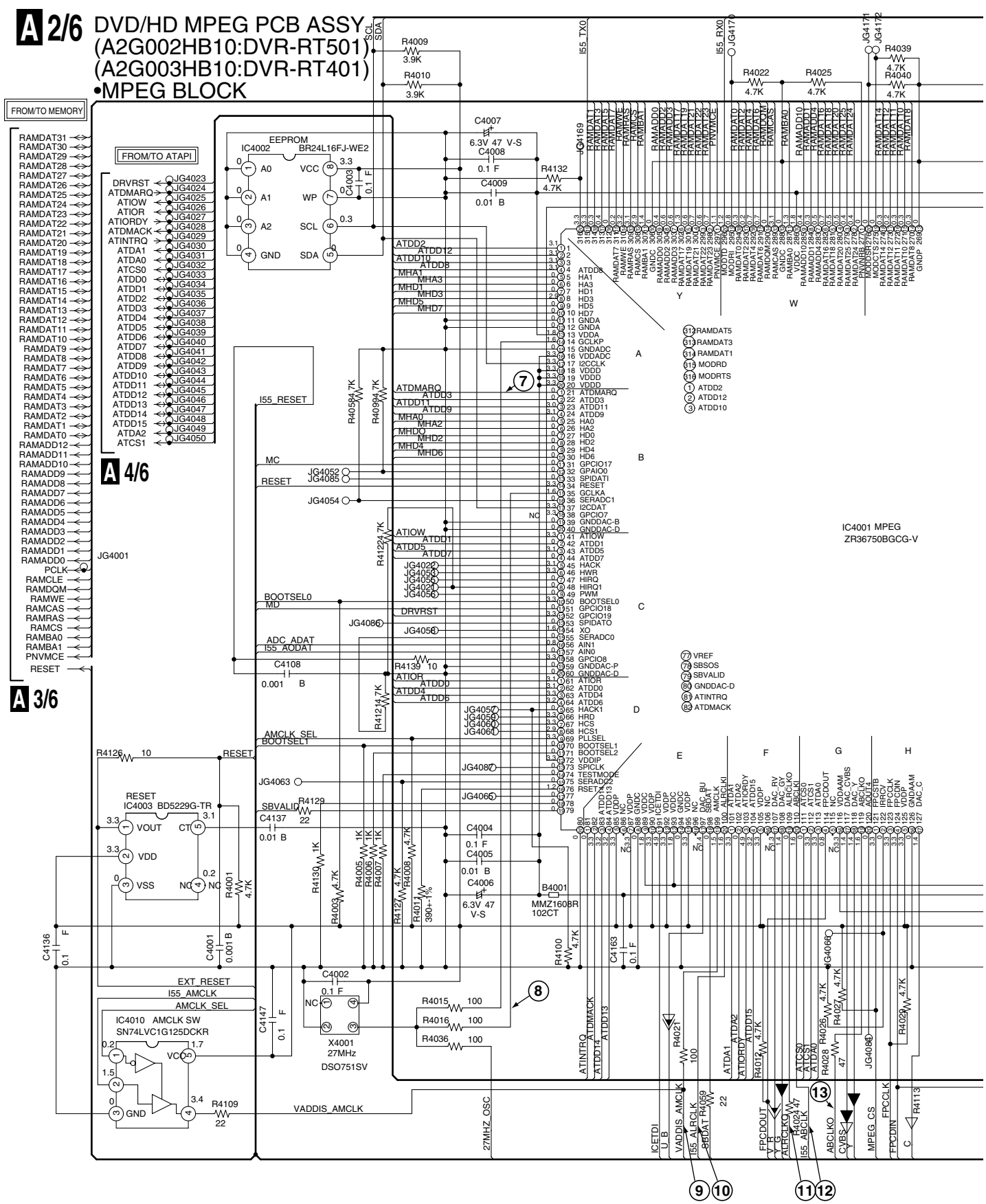


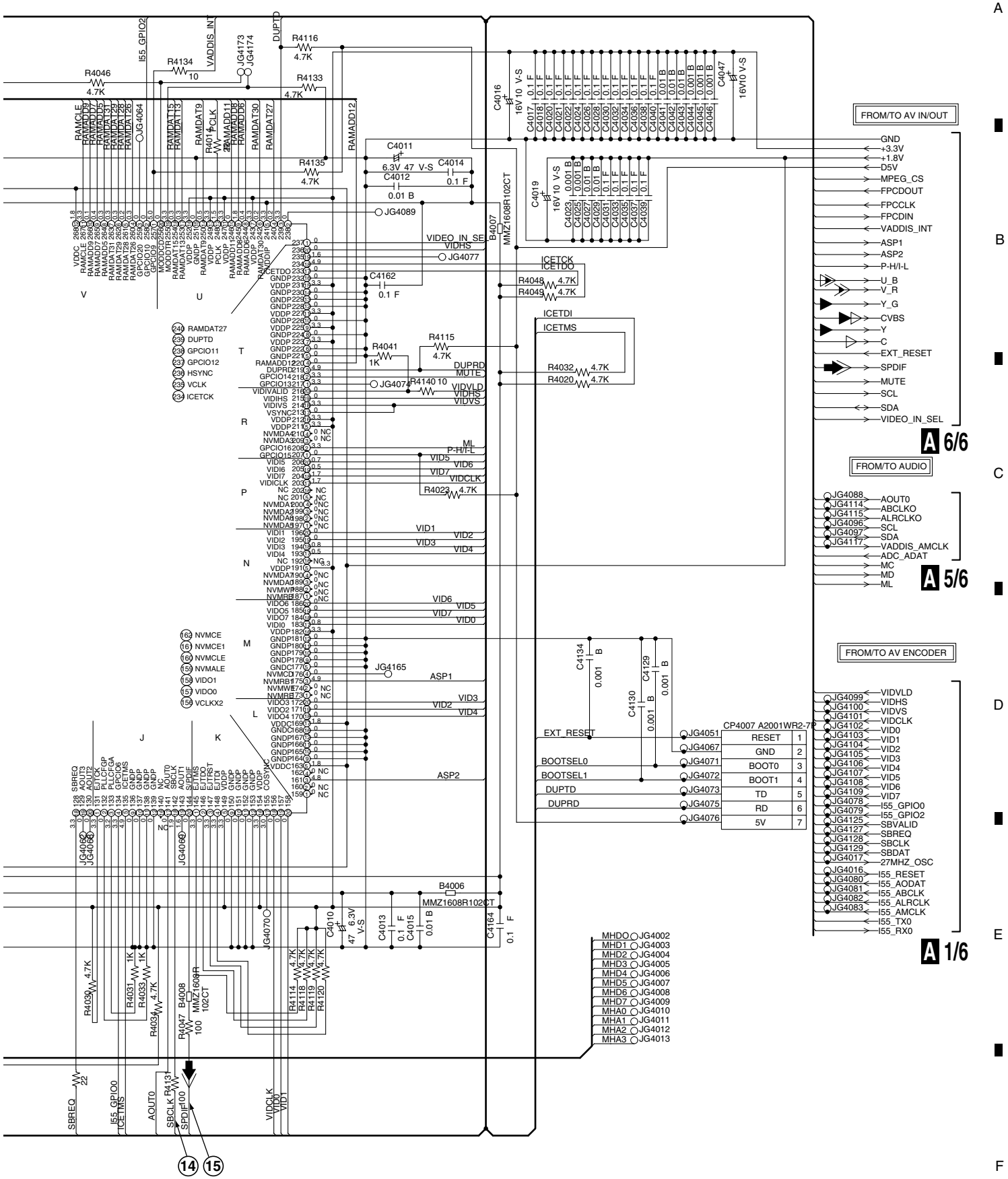


NOTE:THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE

NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

3.4 DVD/HD MPEG PCB ASSY(2/6)



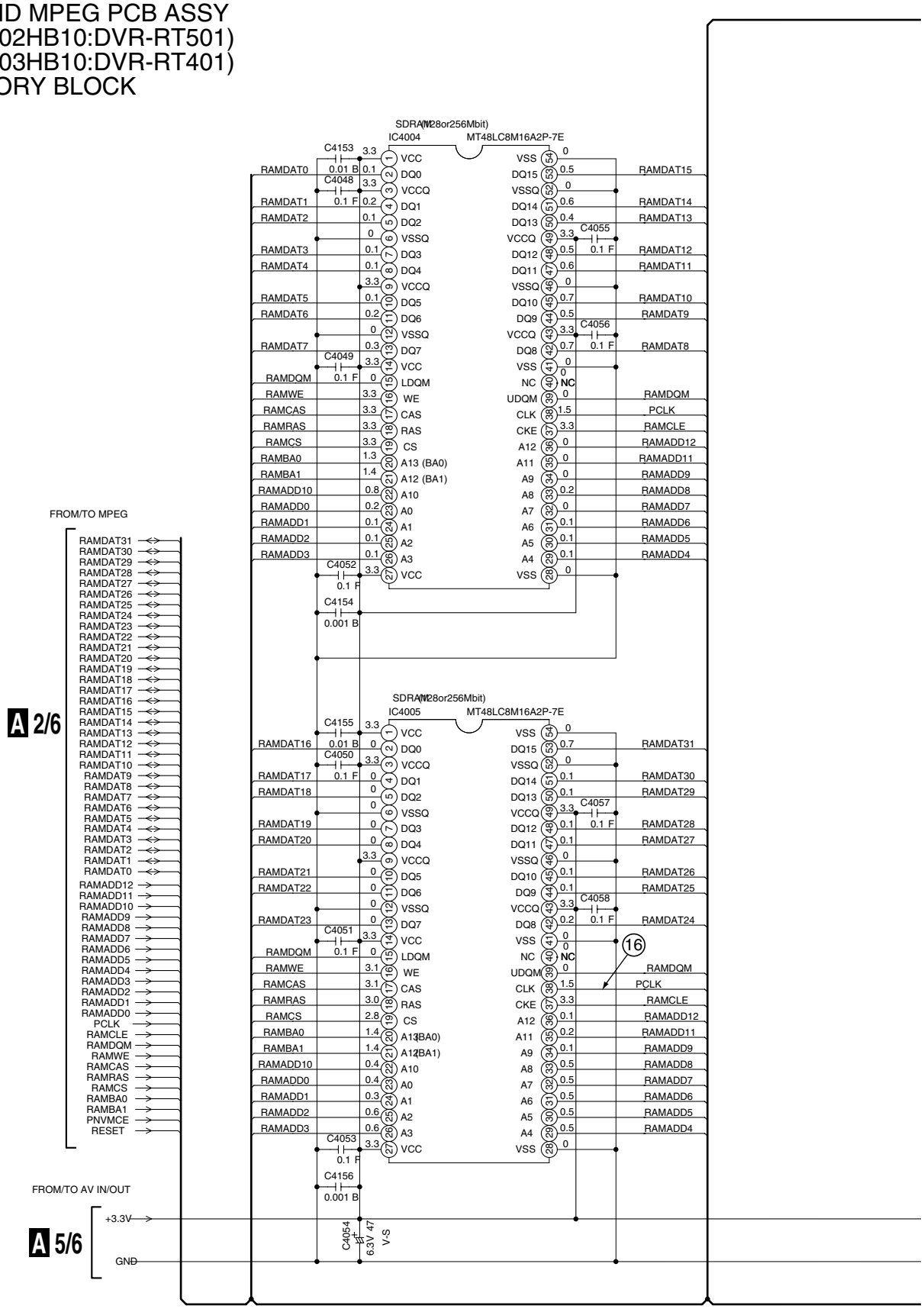


NOTE:THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE

NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

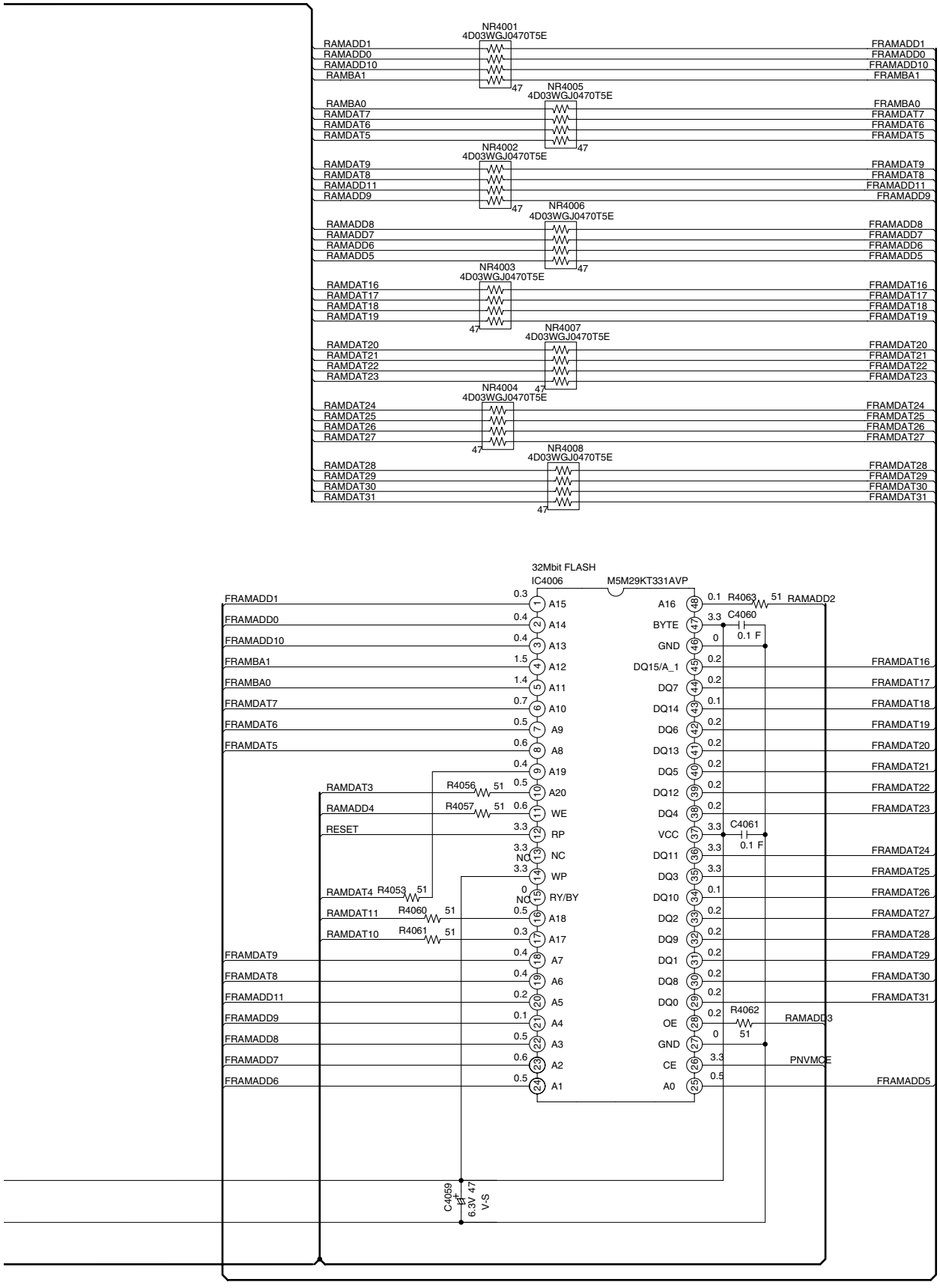
3.5 DVD/HD MPEG PCB ASSY(3/6)

A 3/6 DVD/HD MPEG PCB ASSY (A2G002HB10:DVR-RT501) (A2G003HB10:DVR-RT401) •MEMORY BLOCK



NOTE:THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE

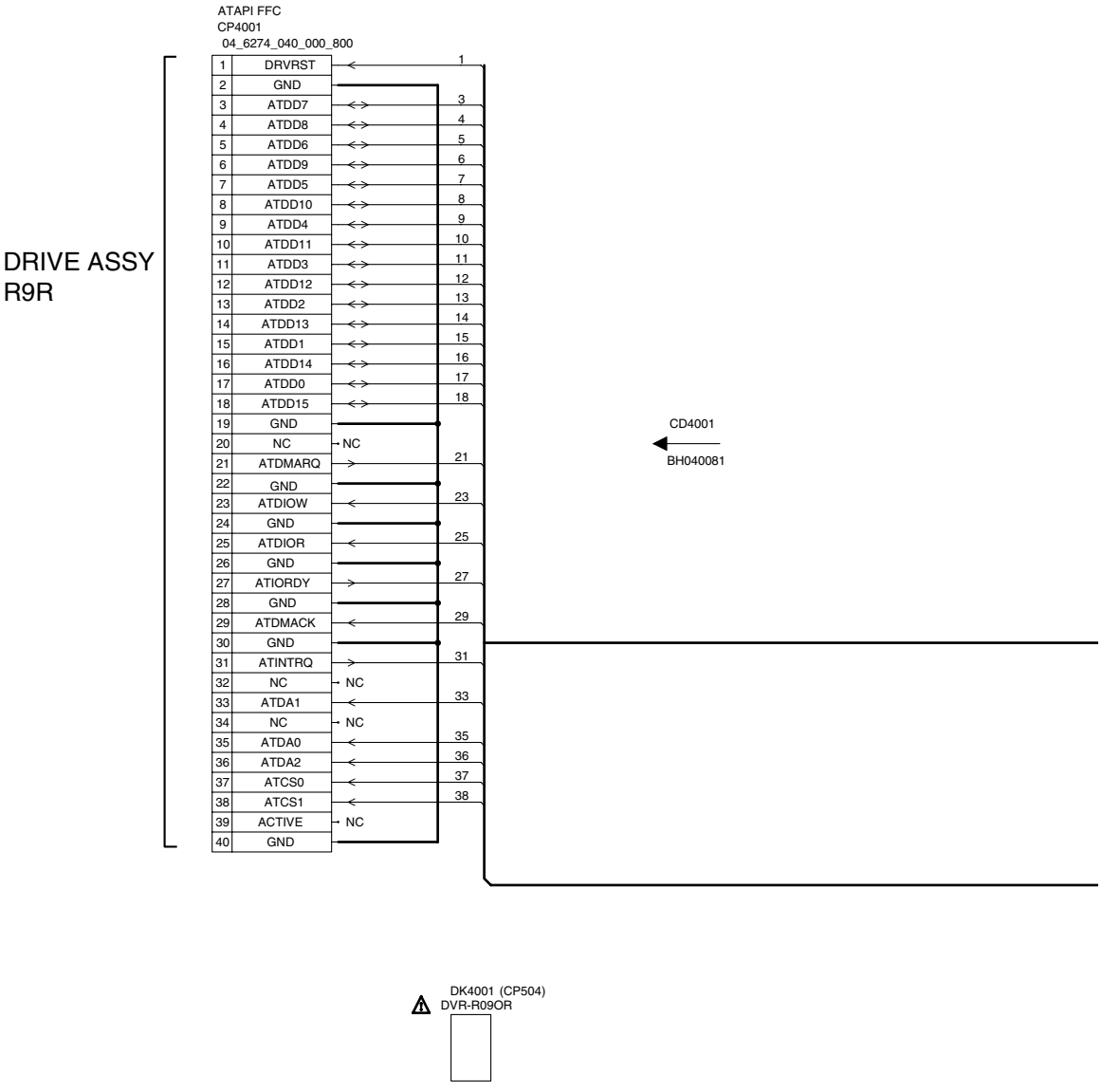
A 3/6



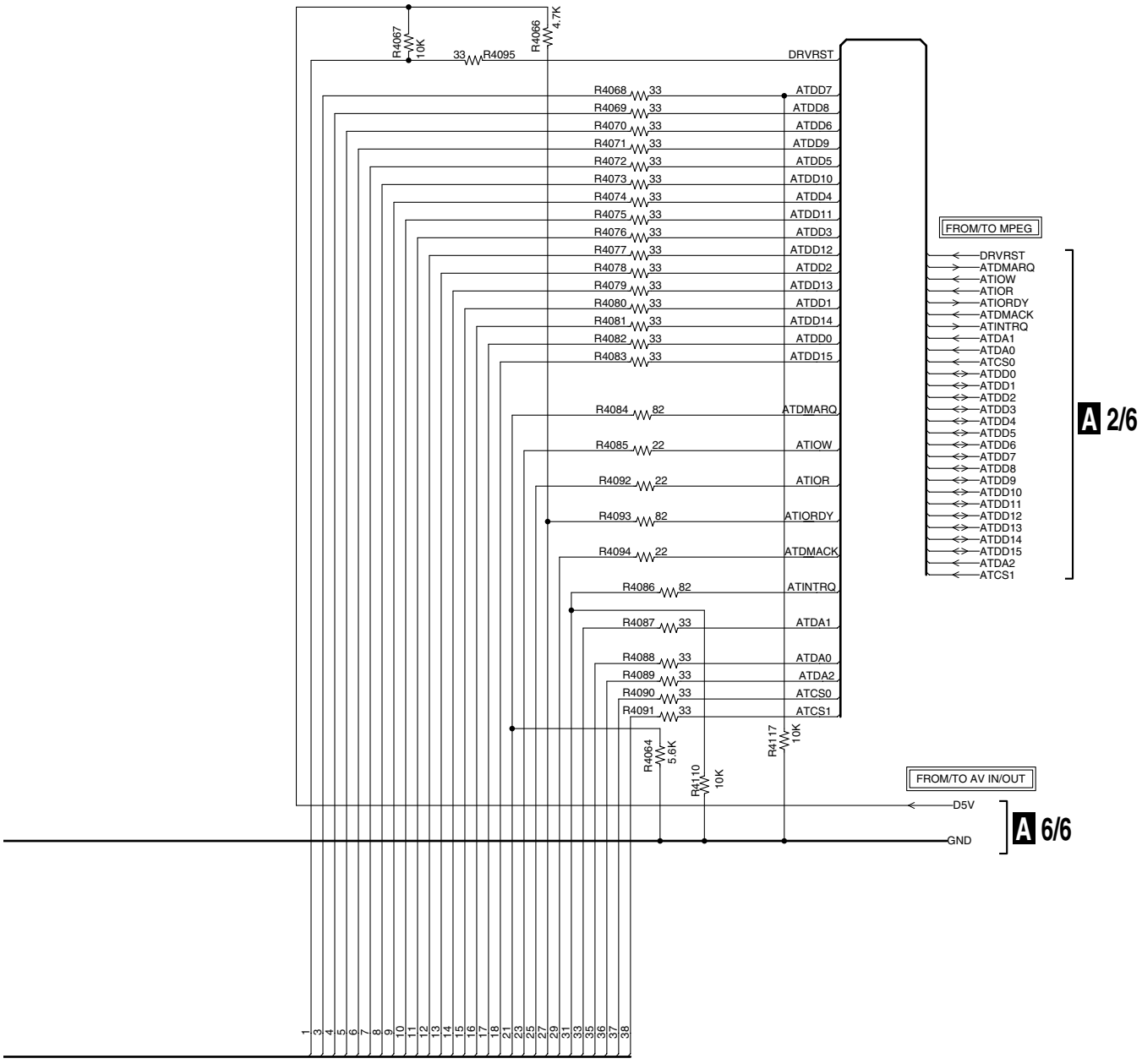
NOTE:THE DC VOLTAGE EACH PART WAS
MEASURED WITH THE DIGITAL TESTER
DURING PLAYBACK.

3.6 DVD/HD MPEG PCB ASSY(4/6)

A 4/6 DVD/HD MPEG PCB ASSY
(A2G002HB10:DVR-RT501)
(A2G003HB10:DVR-RT401)
•ATAPI BLOCK



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

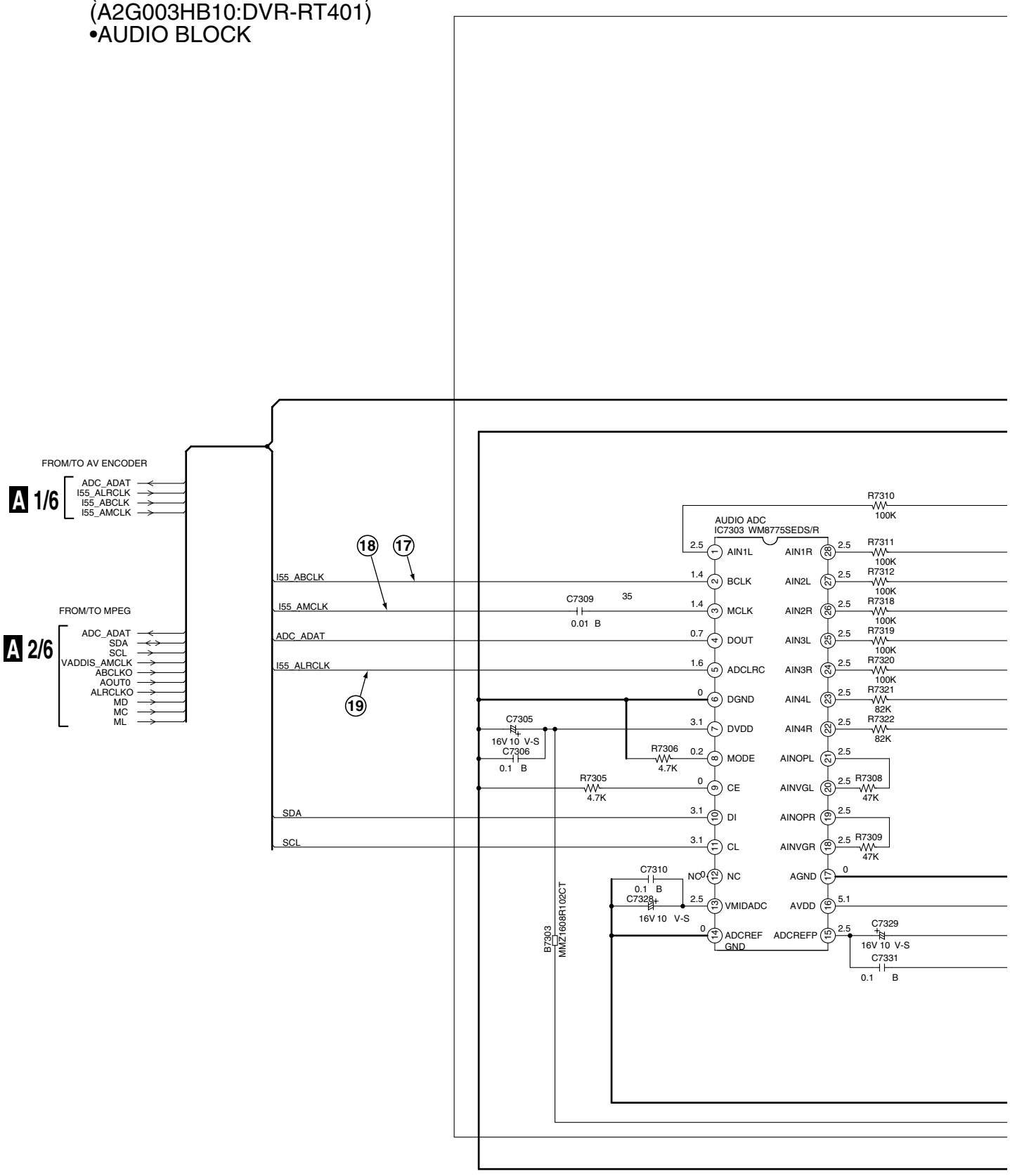


NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

A 4/6

3.7 DVD/HD MPEG PCB ASSY(5/6)

A 5/6 DVD/HD MPEG PCB ASSY
(A2G002HB10:DVR-RT501)
(A2G003HB10:DVR-RT401)
•AUDIO BLOCK

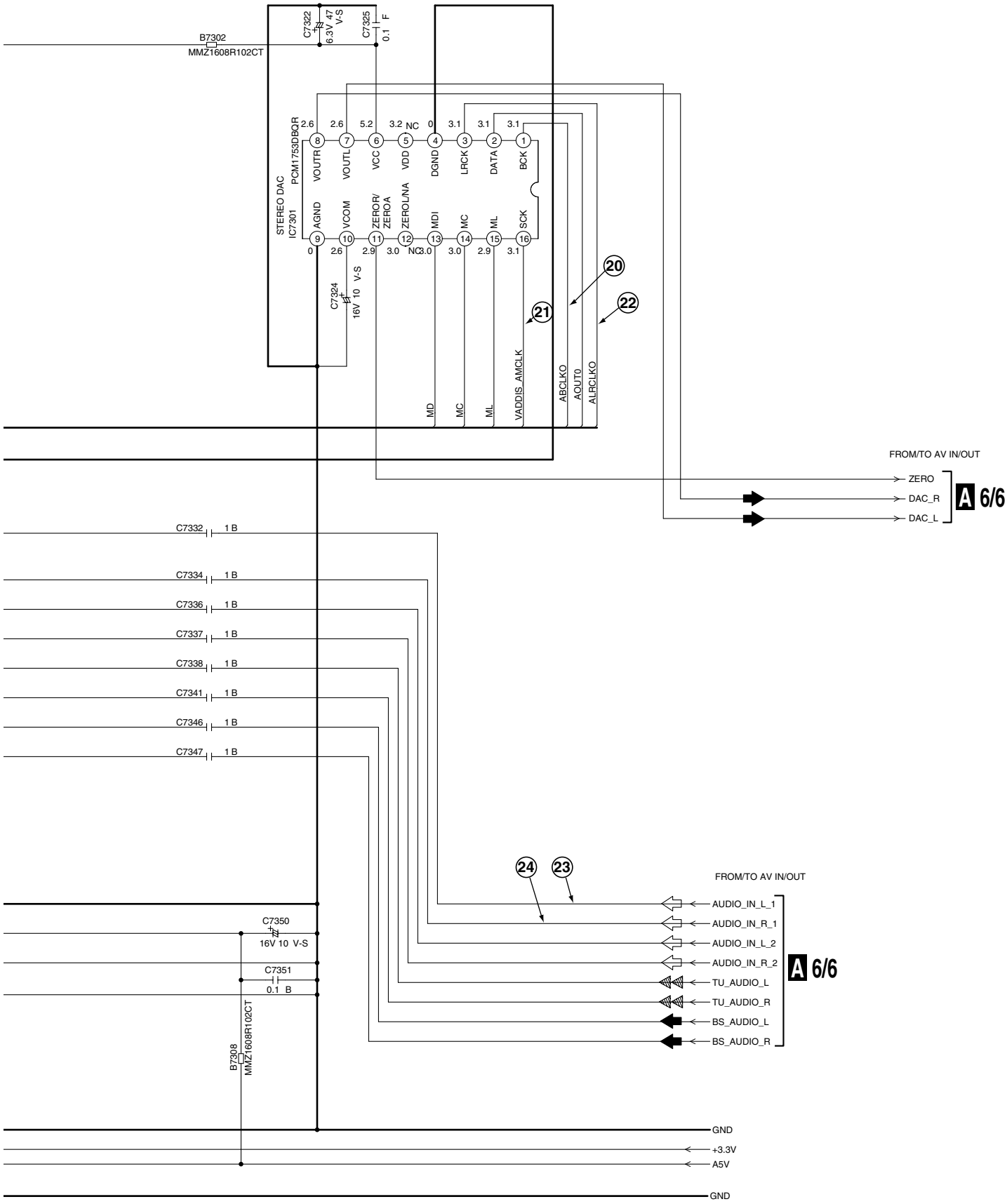


CAUTION: DIGITAL TRANSISTOR

AUDIO SIGNAL
AUDIO SIGNAL(PB)
TUNER AUDIO SIGNAL

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

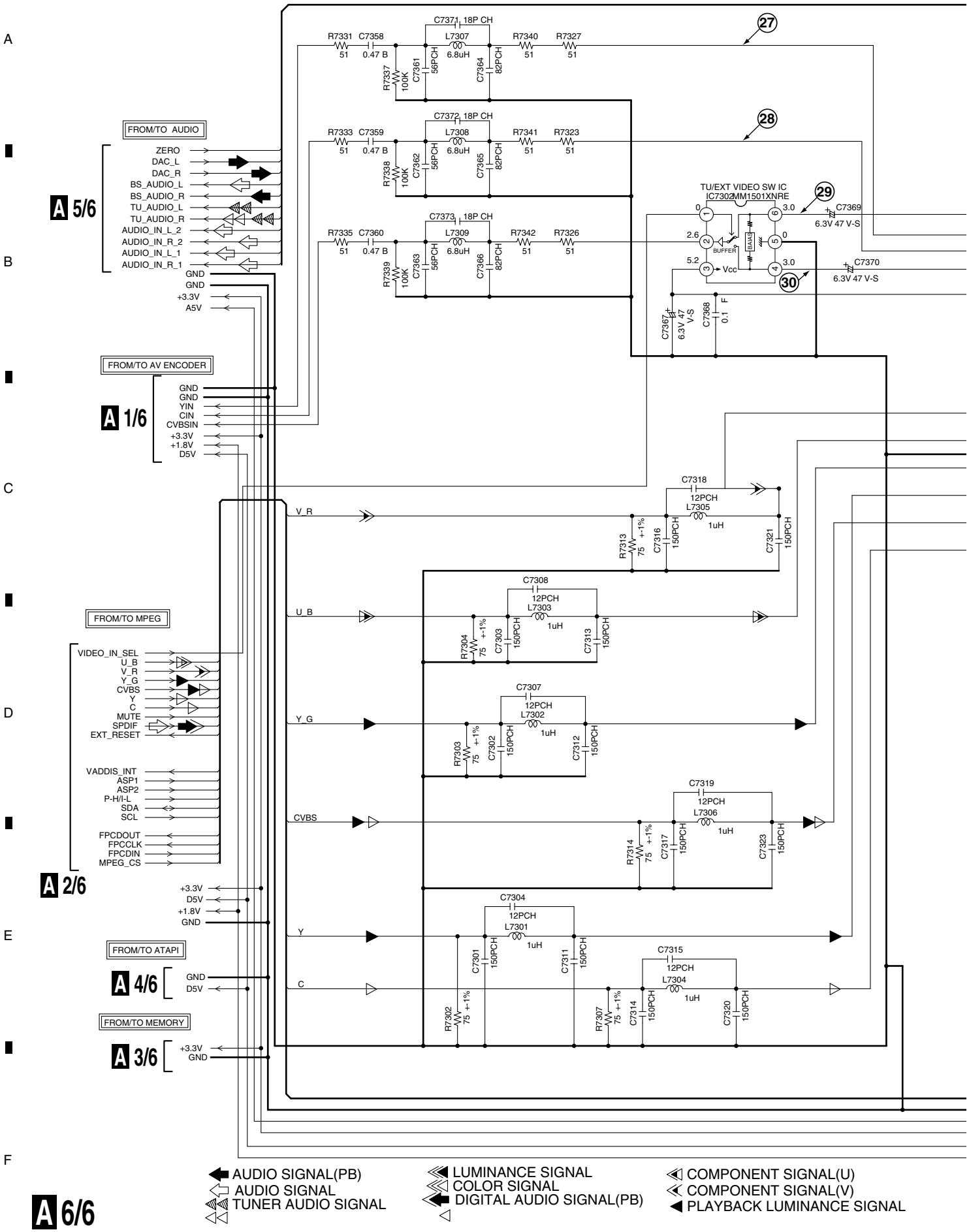
A 5/6



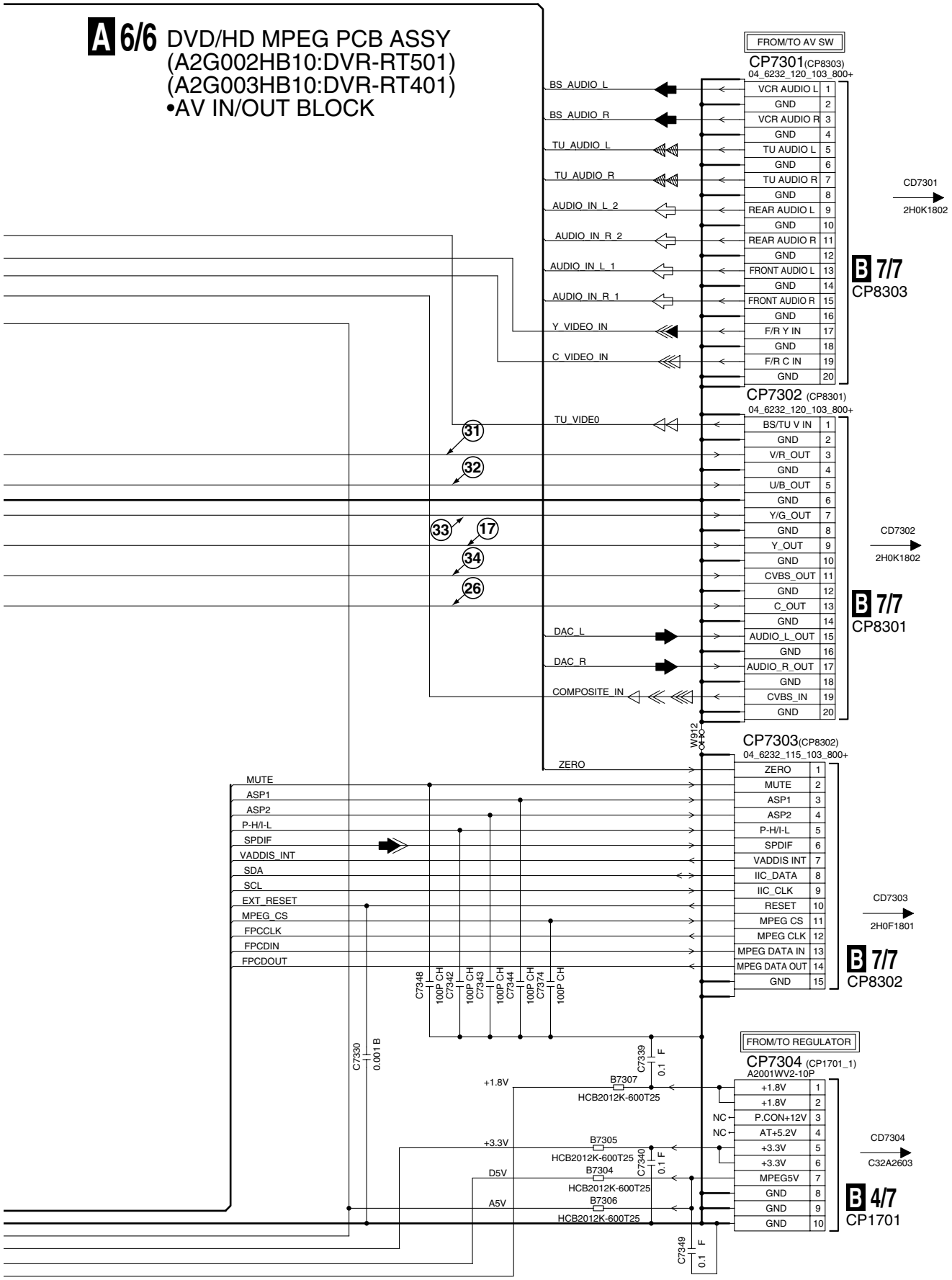
NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

A 5/6

3.8 DVD/HD MPEG PCB ASSY(6/6)



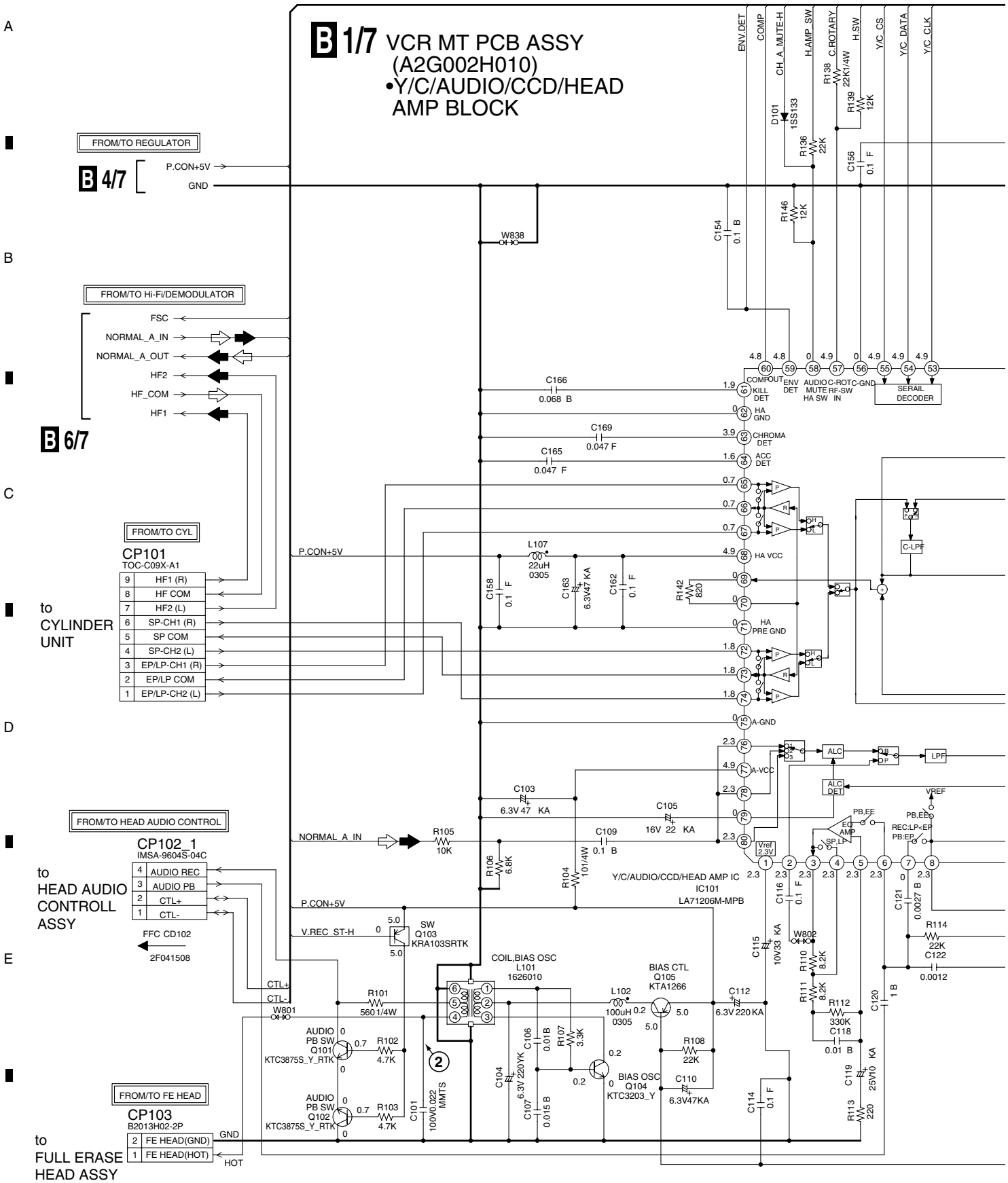
A 6/6 DVD/HD MPEG PCB ASSY (A2G002HB10:DVR-RT501) (A2G003HB10:DVR-RT401) •AV IN/OUT BLOCK



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

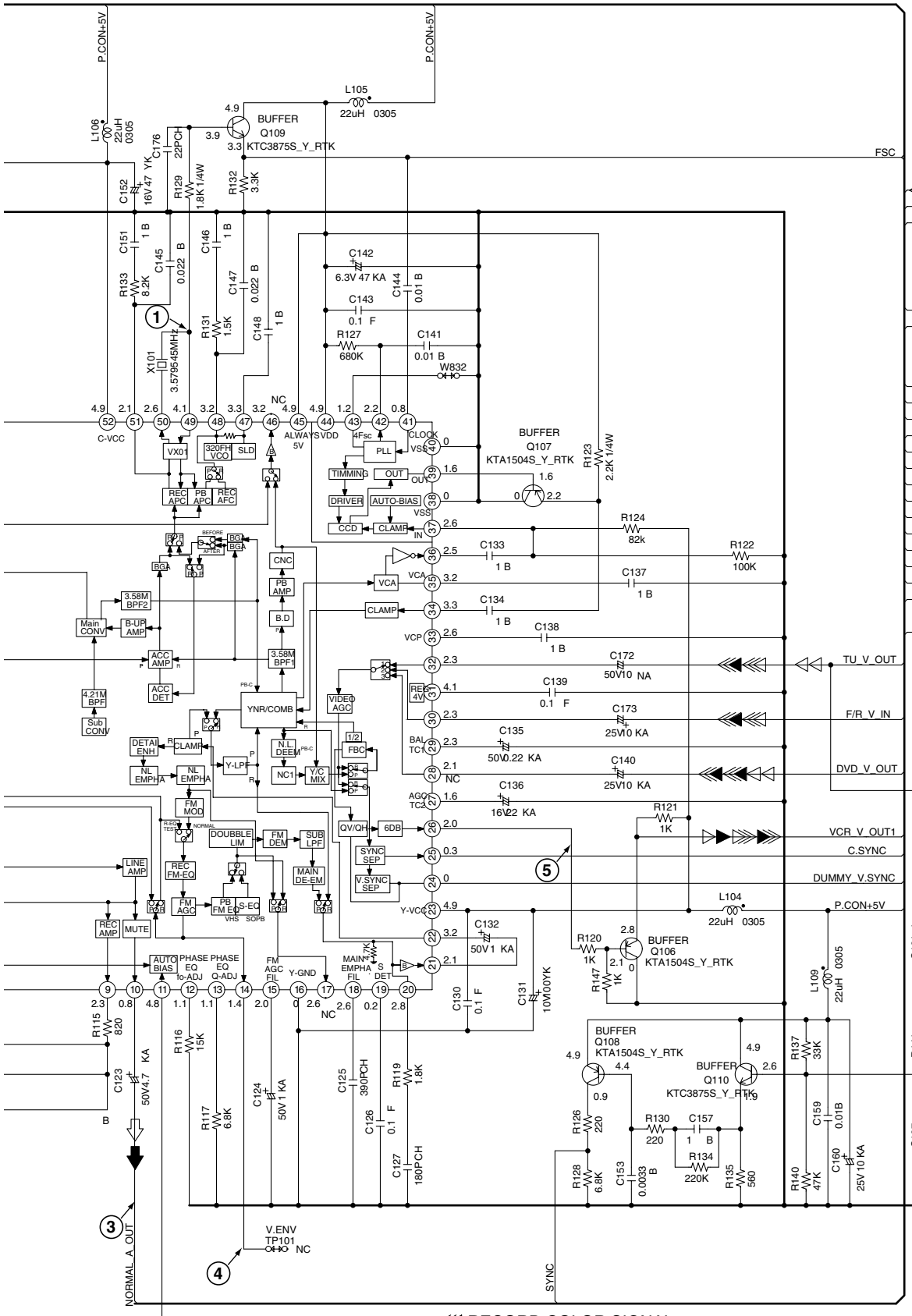
3.9 VCR MT PCB ASSY(1/7)



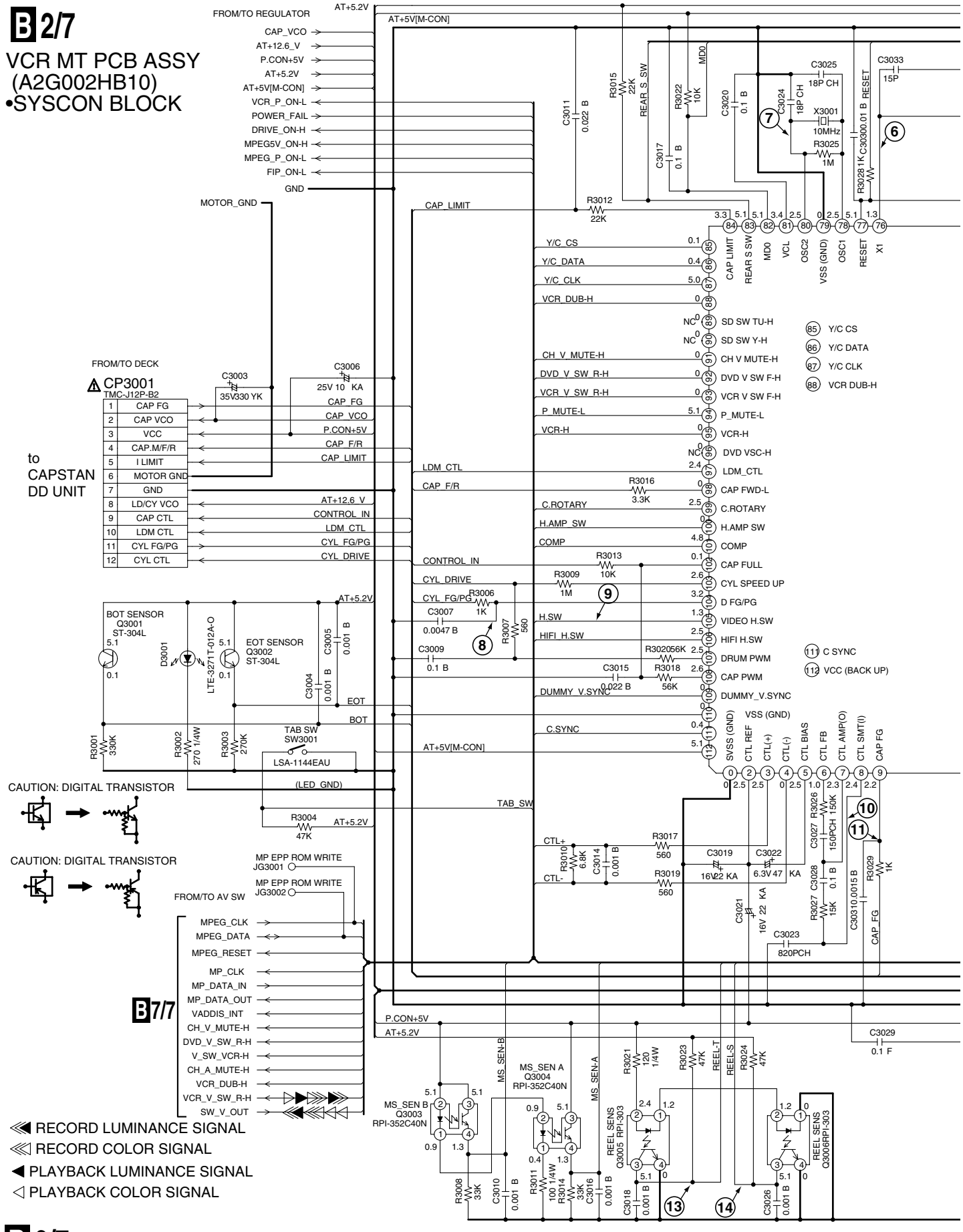
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

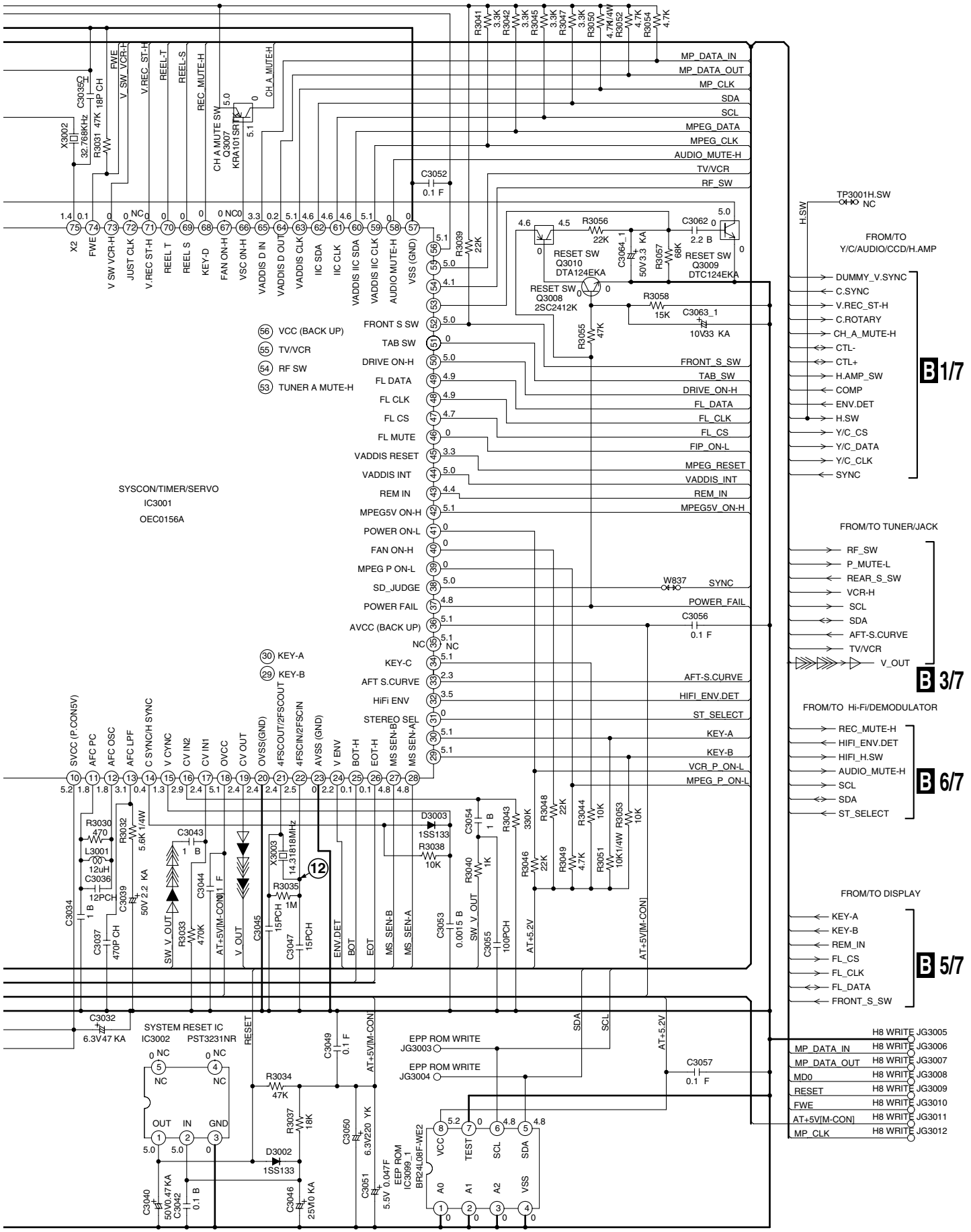
NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

B 1/7


P.CON+5V
L105
22uH 0305
BUFFER
Q109
KTC3875S_Y_RTK
FSC
FROM/TO AV SW
DVD_V_OUT
VCR_V_OUT1
F/R_V_IN
B 7/7
FROM/TO TUNER/JACK
FSC
TU_V_OUT
B 3/7
FROM/TO SYSCON
Y/C_CLK
Y/C_DATA
Y/C_CS
DUMMY_V.SYNC
V.REC_ST-H
C.ROTARY
CH_A_MUTE-H
CTL-
CTL+
H.AMP_SW
COMP
ENV.DET
H.SW
C.SYNC
SYNC
B 2/7
X101
3.579545MHz
BUFFER
Q107
KTA1504S_Y_RTK
C-VCC
ALWAYS 5V
VDD
4Fsc
CLOCK
VSS
PLL
VX01
320FH VCO
SLD
TIMMING
OUT
DRIVER
AUTO-BIAS
CCD
CLAMP
IN
VCA
CNC
PB AMP
B.D
3.58M BPF1
3.58M BPF2
Main CONV
B-UP AMP
ACC AMP
ACC DET
4.21M BPF
Sub CONV
YNR/COMB
VIDEO AGC
N.L DEM
Y/C MIX
NC1
FBC
Y-LPF
DETAI ENH
NL EMPHA
CLAMP
FM MOD
DOUBBLE LIM
FM DEM
SUB LPF
MAIN DE-EM
SYNC SEP
V.SYNC SEP
QV/QH
6DB
LINE AMP
REC FM-EQ
REC AMP
MUTE
FM AGC
PB FM EQ
S-EQ
AUTO BIAS
PHASE EQ to-ADJ
PHASE EQ Q-ADJ
FM AGC FIL
Y-GND
MAIN EMPHA FIL
S DET
V.ENV
TP101
NC
NORMAL_A OUT
SYNC
TU_V_OUT
F/R_V_IN
DVD_V_OUT
VCR_V_OUT1
C.SYNC
DUMMY_V.SYNC
P.CON+5V
BUFFER
Q106
KTA1504S_Y_RTK
BUFFER
Q108
KTA1504S_Y_RTK
BUFFER
Q110
KTC3875S_Y_RTK
L104
22uH 0305
L109
22uH 0305
R120 1K
R121 1K
R122 100K
R123 2.2K 1/4W
R124 82k
R127 680K
R129 1.8K 1/4W
R132 3.3K
R133 8.2K
R131 1.5K
R147 1K
R126 220
R130 220
R134 220K
R135 560
R137 33K
R140 47K
R141 1.2K 1/4W
R115 820
R116 15K
R117 6.8K
R119 1.8K
R128 6.8K
C123 50V4.7 KA
C124 50V 1 KA
C125 390PCH
C126 0.1 F
C127 180PCH
C130 0.1 F
C131 10W00YK
C132 50V 1 KA
C133 1 B
C134 1 B
C135 50V 0.22 KA
C136 16V 22 KA
C137 1 B
C138 1 B
C139 0.1 F
C140 25V 10 KA
C141 0.01 B
C142 6.3V 47 KA
C143 0.1 F
C144 0.01 B
C145 0.022 B
C146 1 B
C147 0.022 B
C148 1 B
C151 1 B
C152 16V 47 YK
C153 0.0033 B
C157 1 B
C159 0.01B
C160 25V 10 KA
C161_1 10V22 KANP
C167 100P CH
C172 50V10 NA
C173 25V10 KA
W832
CAUTION: DIGITAL TRANSISTOR
RECORD COLOR SIGNAL
RECORD LUMINANCE SIGNAL
AUDIO SIGNAL(REC)
AUDIO SIGNAL(PB)
PLAYBACK COLOR SIGNAL
PLAYBACK LUMINANCE SIGNAL
TUNER VIDEO SIGNAL
B 1/7

3.10 VCR MT PCB ASSY(2/7)

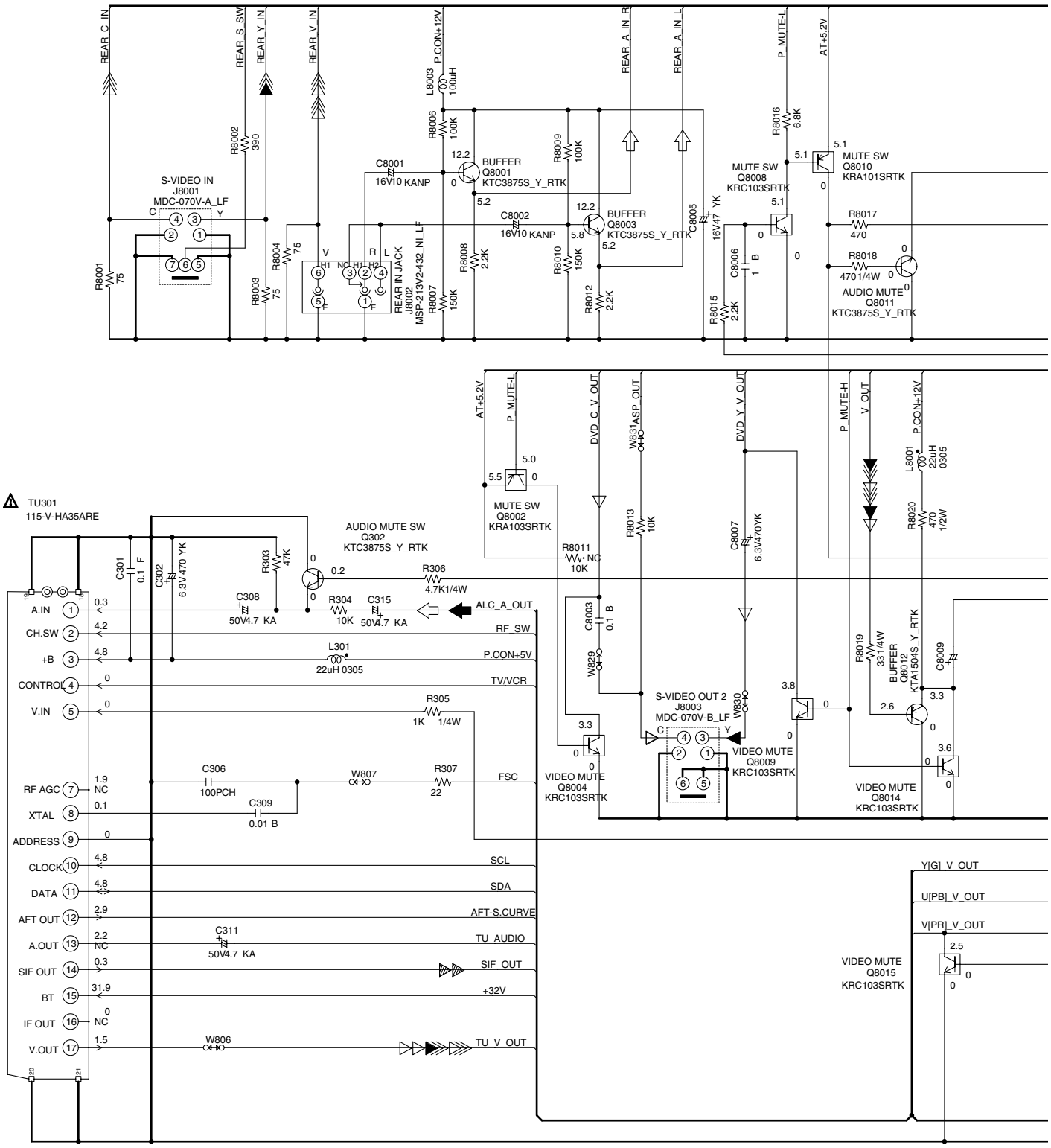




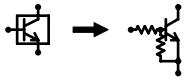
NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTERDURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

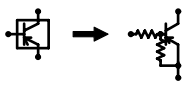
3.11 VCR MT PCB ASSY(3/7)



CAUTION: DIGITAL TRANSISTOR



CAUTION: DIGITAL TRANSISTOR



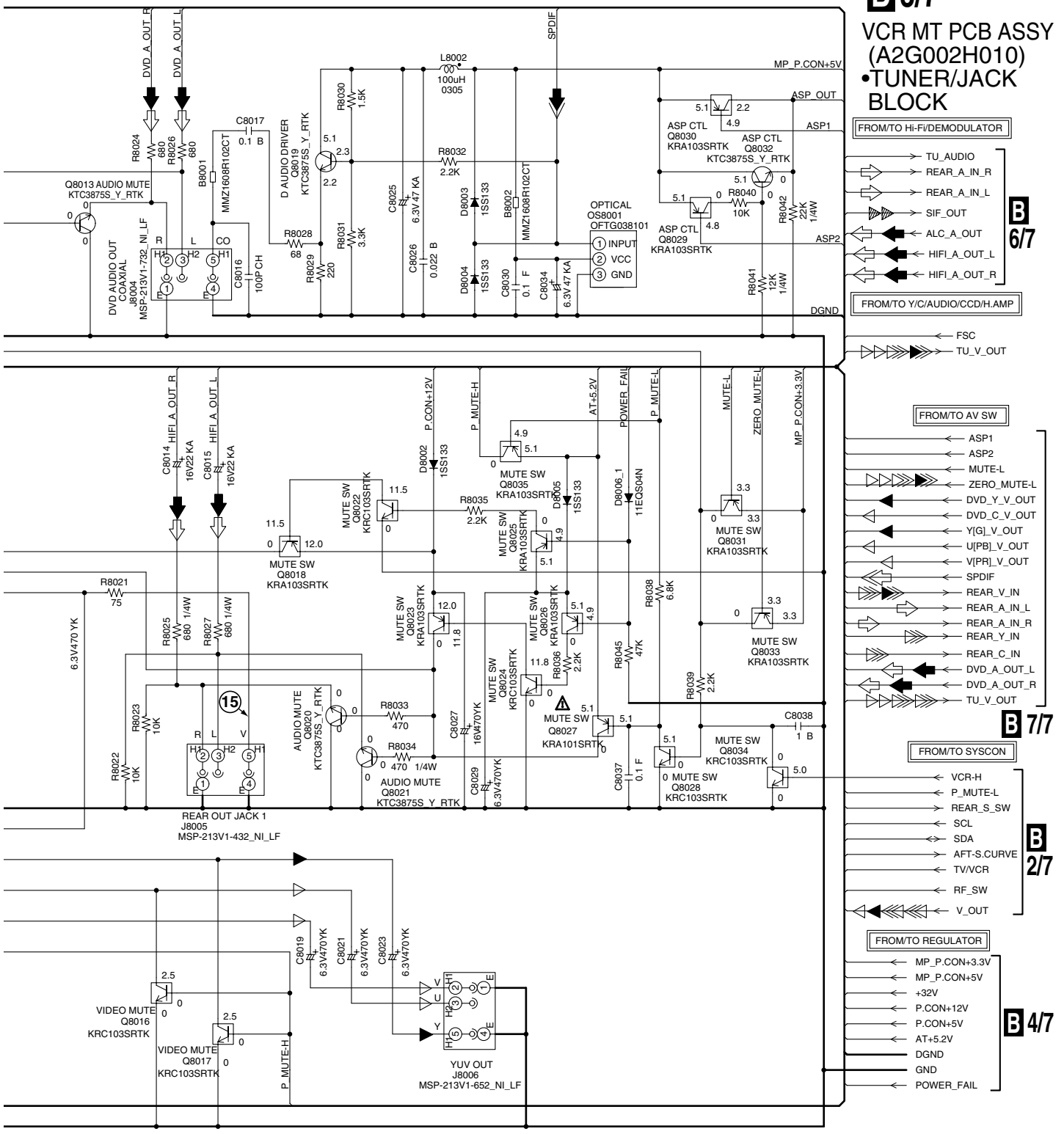
NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE

- RECORD COLOR SIGNAL
- RECORD LUMINANCE SIGNAL
- PLAYBACK COLOR SIGNAL
- PLAYBACK LUMINANCE SIGNAL
- DIGITAL AUDIO SIGNAL(PB)
- AUDIO SIGNAL(REC)
- AUDIO SIGNAL(PB)
- TUNER AUDIO SIGNAL
- TUNER VIDEO SIGNAL

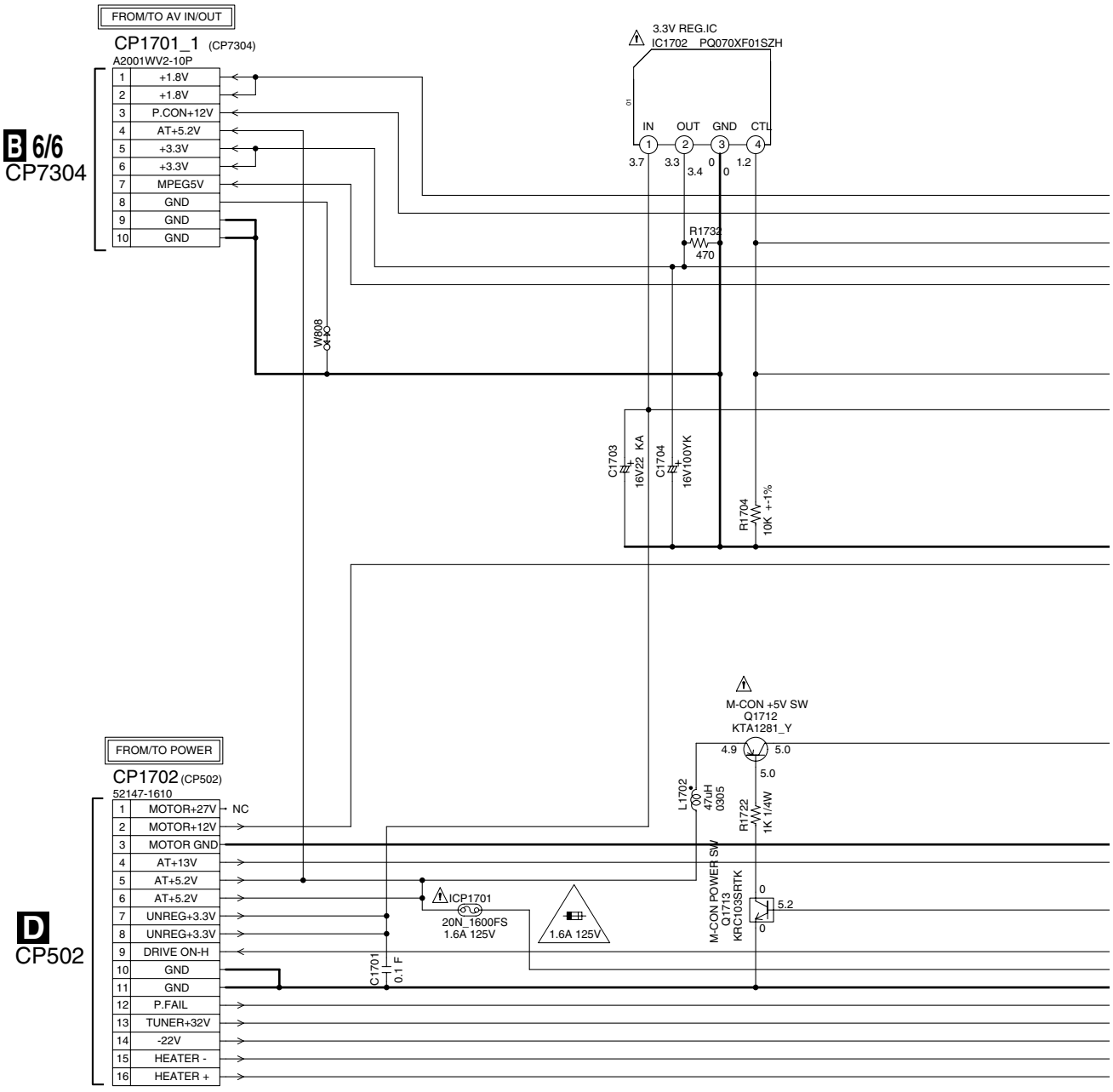
B 3/7

VCR MT PCB ASSY (A2G002H010) •TUNER/JACK BLOCK



3.12 VCR MT PCB ASSY(4/7)

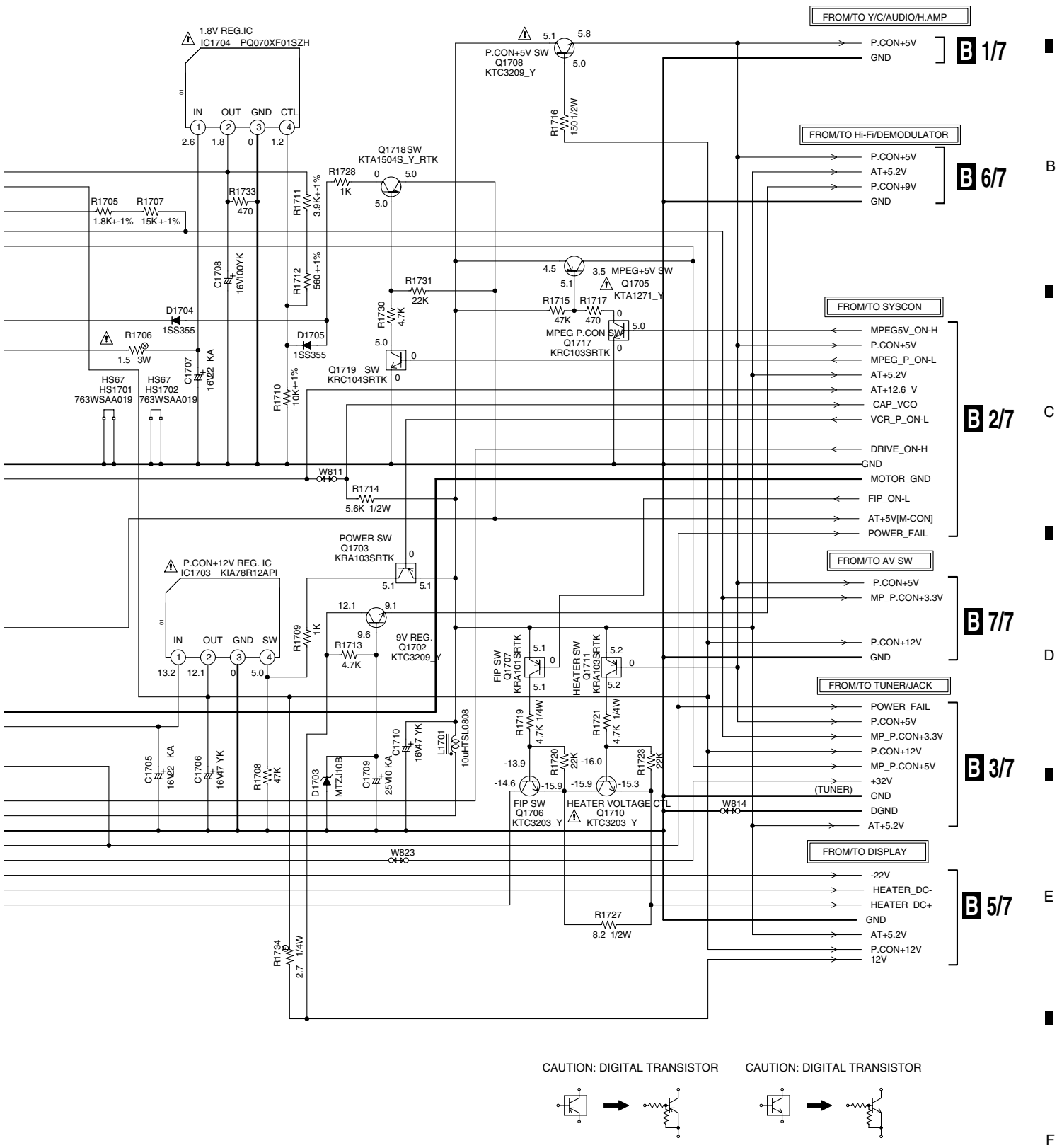
B 4/7 VCR MT PCB ASSY (A2G002HB10) •REGULATOR BLOCK



NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

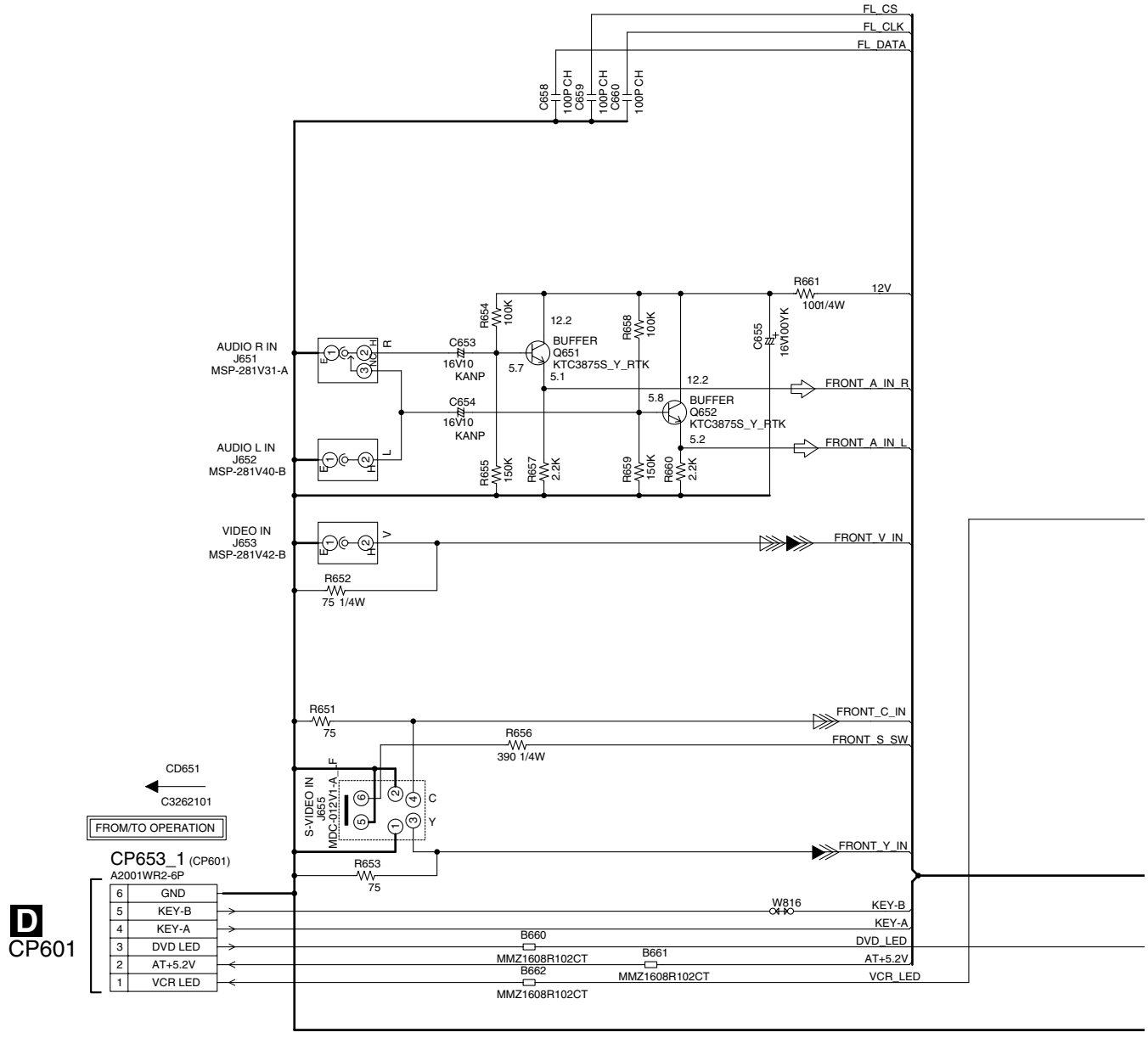
NOTETHIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

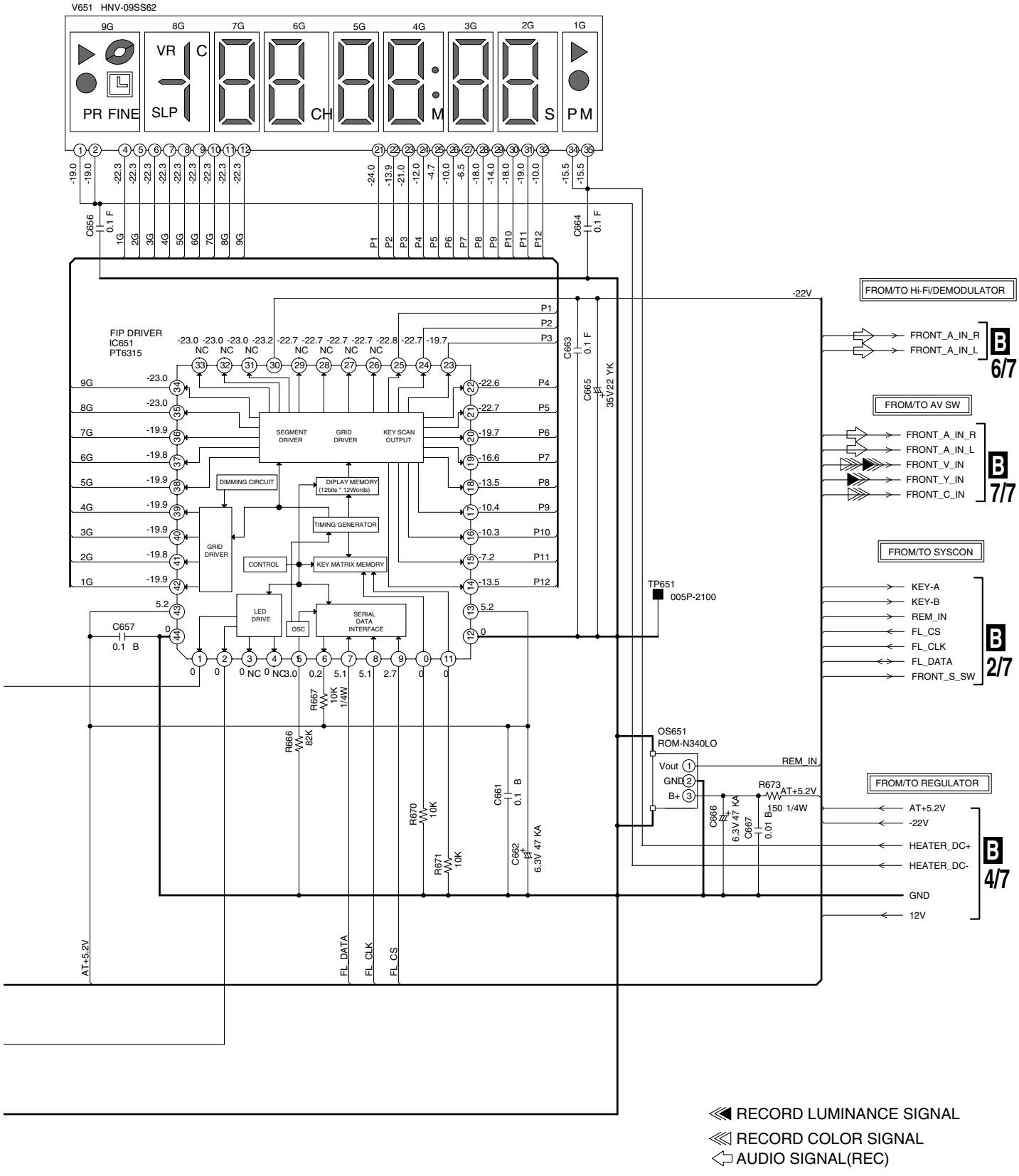
B 4/7


1.8V REG.IC
IC1704 PQ070XF01SZH
IN OUT GND CTL
2.6 1.8 0 1.2
P.CON+5V SW
Q1708
KTC3209_Y
5.1 5.8 5.0
R1716
150 1/2W
Q1718SW
KTA1504S_Y_RTK
R1728
1K
R1733
470
R1711
3.9K+-1%
R1705
1.8K+-1%
R1707
15K+-1%
C1708
16V100YK
R1712
560+-1%
R1731
22K
R1730
4.7K
D1704
1SS355
D1705
1SS355
R1706
1.5 3W
C1707
16V22 KA
HS67
HS1701
763WSAA019
HS67
HS1702
763WSAA019
R1710
10K+-1%
Q1719 SW
KRC104SRTK
MPEG+5V SW
Q1705
KTA1271_Y
R1715
47K
R1717
470
MPEG P.CON SW
Q1717
KRC103SRTK
W811
R1714
5.6K 1/2W
POWER SW
Q1703
KRA103SRTK
P.CON+12V REG. IC
IC1703 KIA78R12API
IN OUT GND SW
13.2 12.1 0 5.0
R1709
1K
R1713
4.7K
9V REG.
Q1702
KTC3209_Y
FIP SW
Q1707
KRA101SRTK
HEATER SW
Q1711
KRA103SRTK
C1705
16V22 KA
C1706
16V47 YK
R1708
47K
D1703
MTZJ10B
C1709
25W0 KA
C1710
16V47 YK
L1701
10uHTSL0808
R1719
4.7K 1/4W
R1721
4.7K 1/4W
R1720
22K
R1723
22K
FIP SW
Q1706
KTC3203_Y
HEATER VOLTAGE CTL
Q1710
KTC3203_Y
W823
W814
R1727
8.2 1/2W
R1734
2.7 1/4W
FROM/TO Y/C/AUDIO/H.AMP
P.CON+5V
GND
B 1/7
FROM/TO Hi-Fi/DEMODULATOR
P.CON+5V
AT+5.2V
P.CON+9V
GND
B 6/7
FROM/TO SYSCON
MPEG5V_ON-H
P.CON+5V
MPEG_P_ON-L
AT+5.2V
AT+12.6_V
CAP_VCO
VCR_P_ON-L
DRIVE_ON-H
GND
MOTOR_GND
FIP_ON-L
AT+5V[M-CON]
POWER_FAIL
B 2/7
FROM/TO AV SW
P.CON+5V
MP_P.CON+3.3V
P.CON+12V
GND
B 7/7
FROM/TO TUNER/JACK
POWER_FAIL
P.CON+5V
MP_P.CON+3.3V
P.CON+12V
MP_P.CON+5V
+32V
(TUNER) GND
DGND
AT+5.2V
B 3/7
FROM/TO DISPLAY
-22V
HEATER_DC-
HEATER_DC+
GND
AT+5.2V
P.CON+12V
12V
B 5/7
CAUTION: DIGITAL TRANSISTOR
CAUTION: DIGITAL TRANSISTOR
B 4/7

3.13 VCR MT PCB ASSY(5/7)

B 5/7 VCR MT PCB ASSY
(A2G002H010)
•DISPLAY BLOCK





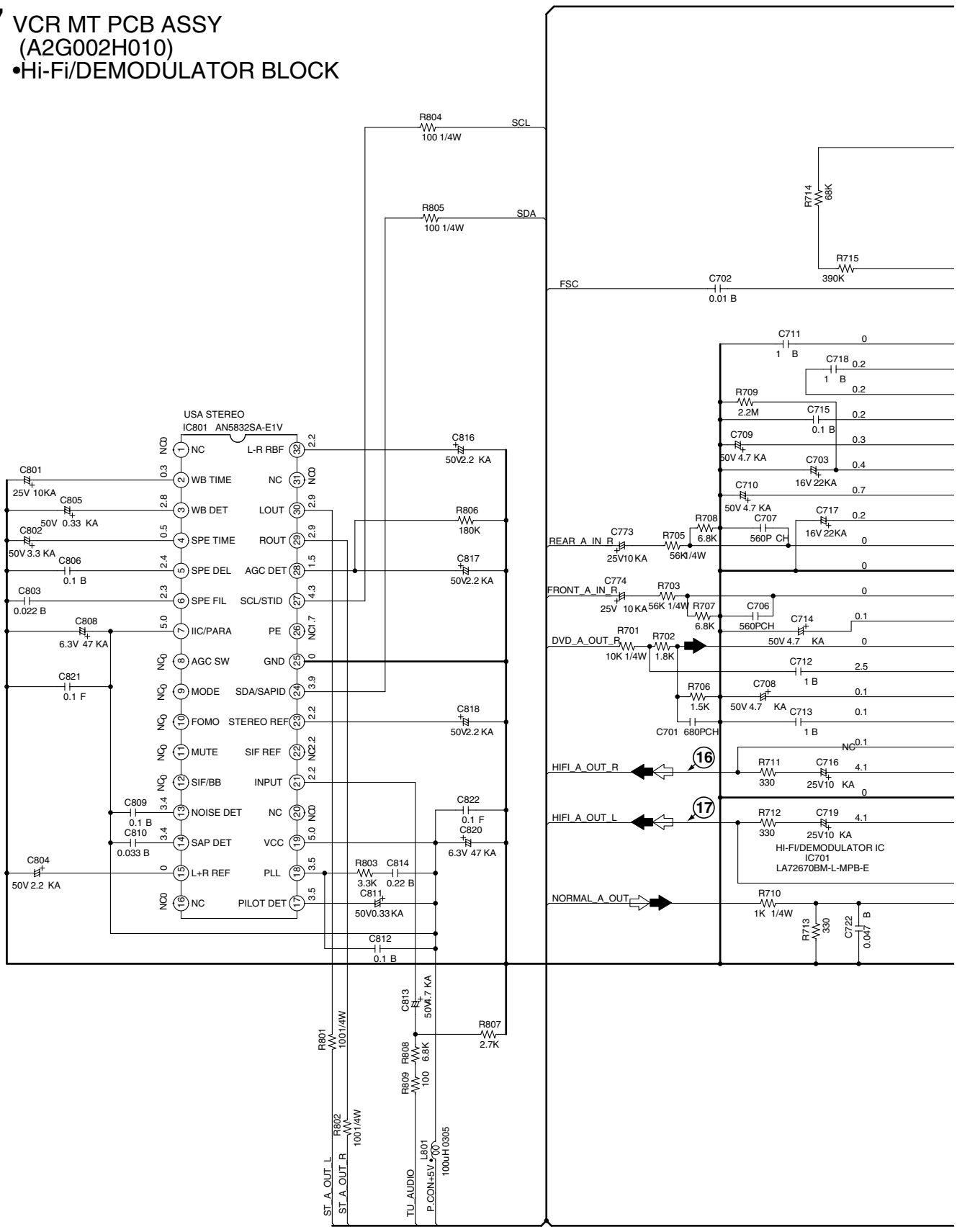
NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE:THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

B 5/7

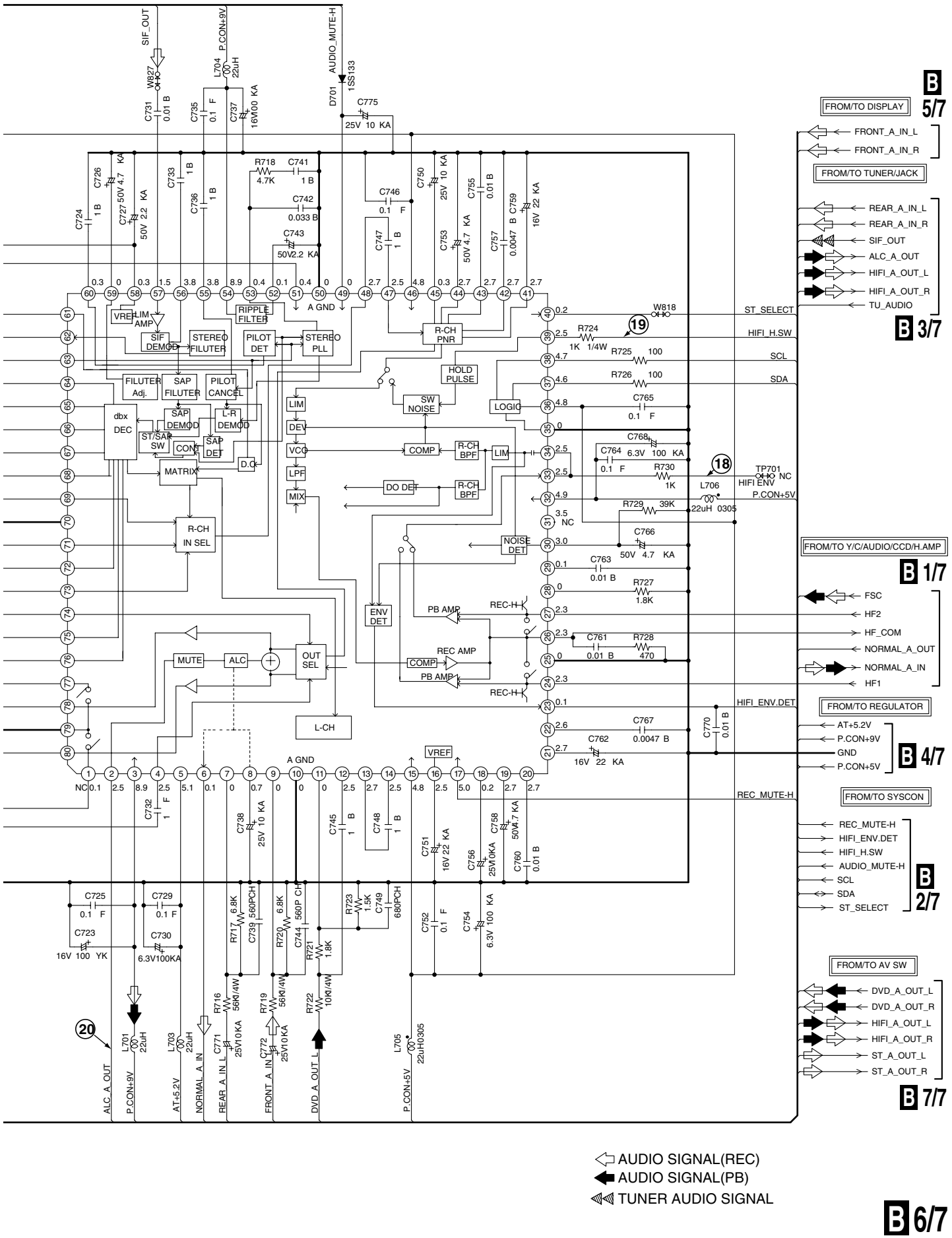
3.14 VCR MT PCB ASSY(6/7)

B 6/7 VCR MT PCB ASSY (A2G002H010) •Hi-Fi/DEMODULATOR BLOCK

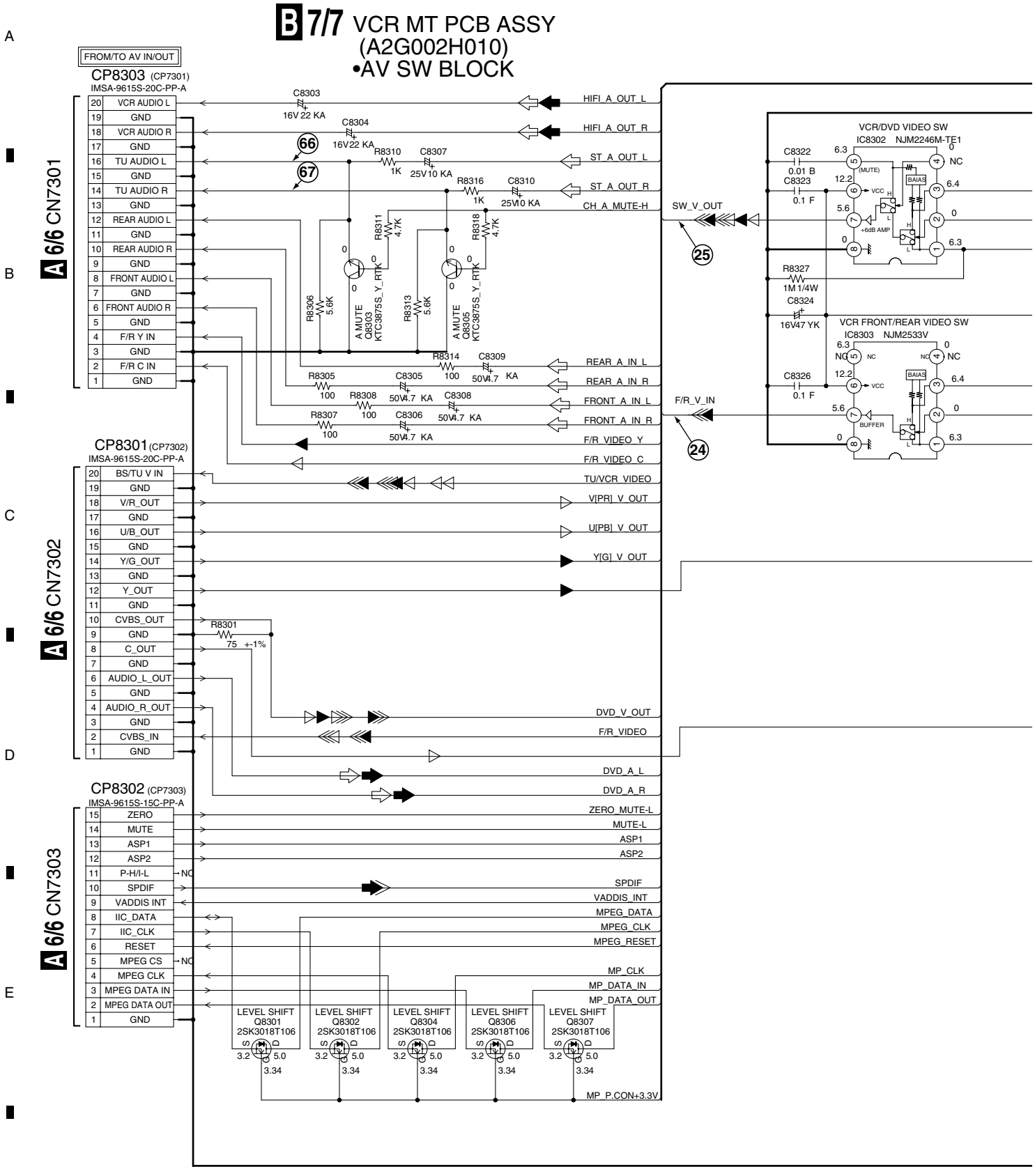


NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

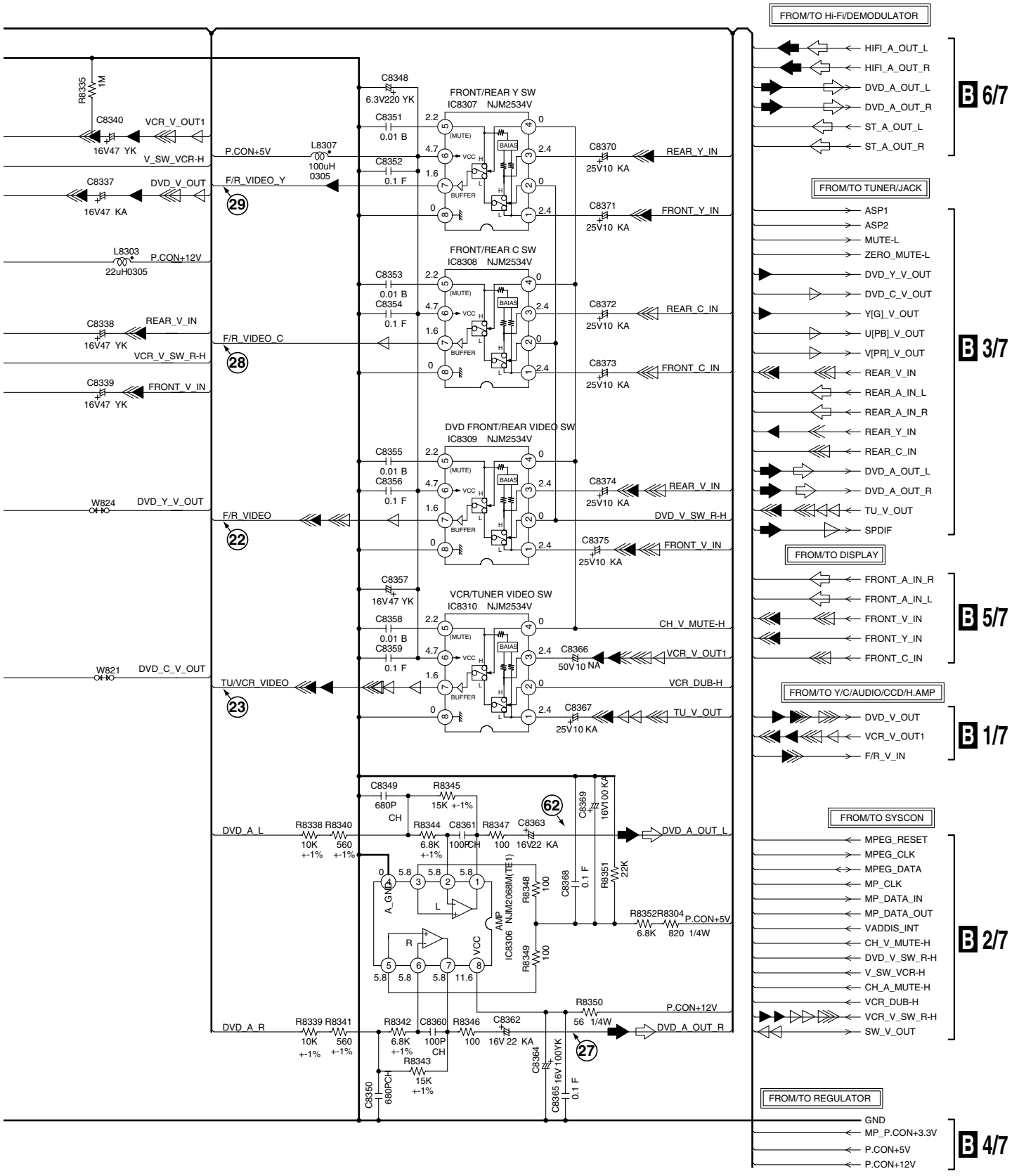

FROM/TO DISPLAY
FRONT_A_IN_L
FRONT_A_IN_R
FROM/TO TUNER/JACK
REAR_A_IN_L
REAR_A_IN_R
SIF_OUT
ALC_A_OUT
HIFI_A_OUT_L
HIFI_A_OUT_R
TU_AUDIO
ST_SELECT
HIFI_H.SW
SCL
SDA
HIFI ENV
P.CON+5V
FROM/TO Y/C/AUDIO/CCD/H.AMP
FSC
HF2
HF_COM
NORMAL_A_OUT
NORMAL_A_IN
HF1
HIFI_ENV.DET
FROM/TO REGULATOR
AT+5.2V
P.CON+9V
GND
P.CON+5V
REC_MUTE-H
FROM/TO SYSCON
HIFI_ENV.DET
HIFI_H.SW
AUDIO_MUTE-H
SCL
SDA
ST_SELECT
FROM/TO AV SW
DVD_A_OUT_L
DVD_A_OUT_R
HIFI_A_OUT_L
HIFI_A_OUT_R
ST_A_OUT_L
ST_A_OUT_R
AUDIO SIGNAL(REC)
AUDIO SIGNAL(PB)
TUNER AUDIO SIGNAL

3.15 VCR MT PCB ASSY(7/7)



NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

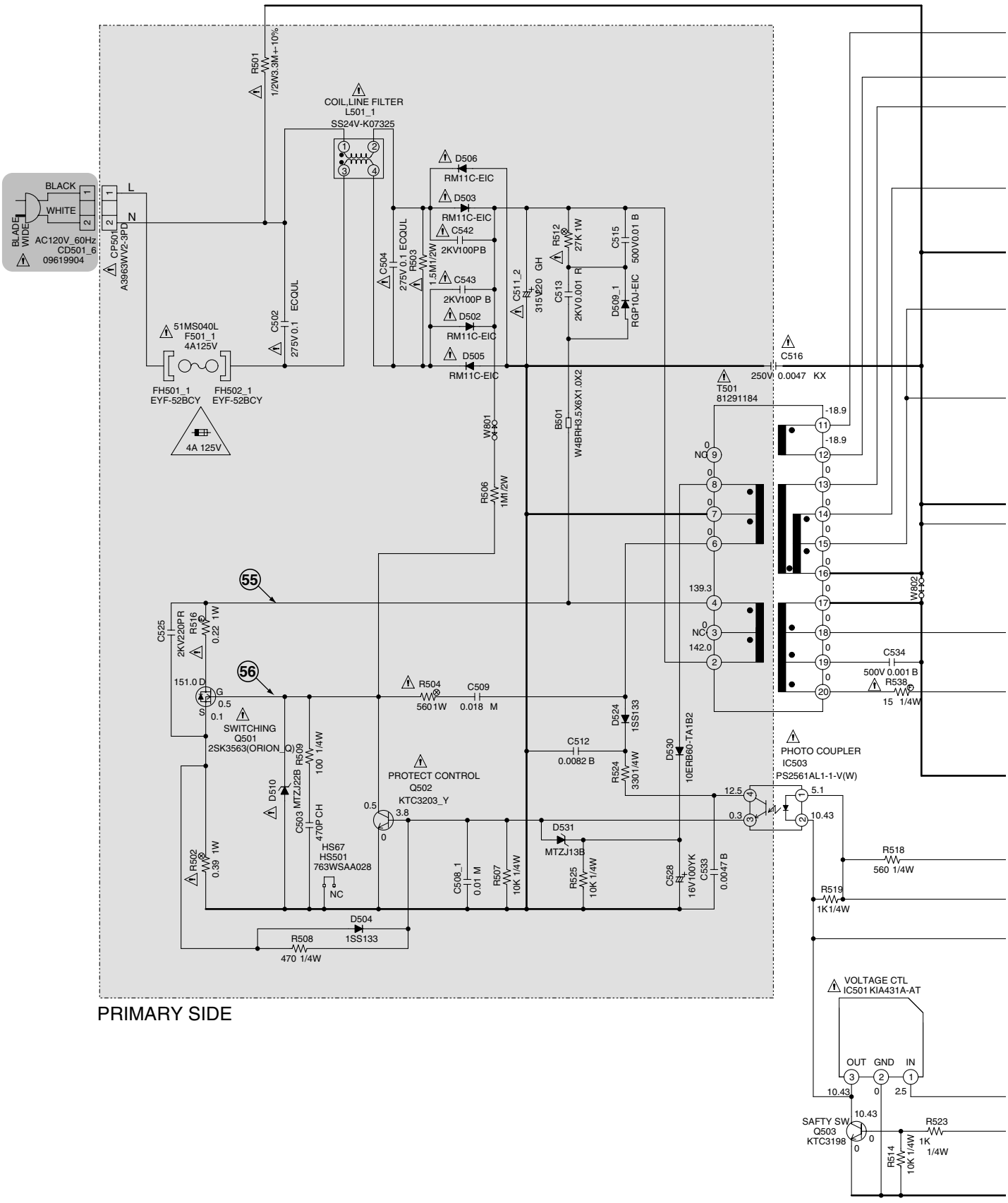
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。


FROM/TO Hi-Fi/DEMODULATOR
HIFI_A_OUT_L
HIFI_A_OUT_R
DVD_A_OUT_L
DVD_A_OUT_R
ST_A_OUT_L
ST_A_OUT_R
B 6/7
FROM/TO TUNER/JACK
ASP1
ASP2
MUTE-L
ZERO_MUTE-L
DVD_Y_V_OUT
DVD_C_V_OUT
Y[G]_V_OUT
U[PB]_V_OUT
V[PR]_V_OUT
REAR_V_IN
REAR_A_IN_L
REAR_A_IN_R
REAR_Y_IN
REAR_C_IN
DVD_A_OUT_L
DVD_A_OUT_R
TU_V_OUT
SPDIF
B 3/7
FROM/TO DISPLAY
FRONT_A_IN_R
FRONT_A_IN_L
FRONT_V_IN
FRONT_Y_IN
FRONT_C_IN
B 5/7
FROM/TO Y/C/AUDIO/CCD/H.AMP
DVD_V_OUT
VCR_V_OUT1
F/R_V_IN
B 1/7
FROM/TO SYSCON
MPEG_RESET
MPEG_CLK
MPEG_DATA
MP_CLK
MP_DATA_IN
MP_DATA_OUT
VADDIS_INT
CH_V_MUTE-H
DVD_V_SW_R-H
V_SW_VCR-H
CH_A_MUTE-H
VCR_DUB-H
VCR_V_SW_R-H
SW_V_OUT
B 2/7
FROM/TO REGULATOR
GND
MP_P.CON+3.3V
P.CON+5V
P.CON+12V
B 4/7
FRONT/REAR Y SW
IC8307 NJM2534V
FRONT/REAR C SW
IC8308 NJM2534V
DVD FRONT/REAR VIDEO SW
IC8309 NJM2534V
VCR/TUNER VIDEO SW
IC8310 NJM2534V
AMP
IC8306 NJM2068M(TE1)
BUFFER
BAIAS
VCC
(MUTE)
P.CON+5V
P.CON+12V
L8307 100uH 0305
L8303 22uH0305
R8335 1M
C8340 16V47 YK
C8337 16V47 KA
C8338 16V47 YK
C8339 16V47 YK
C8348 6.3V220 YK
C8351 0.01 B
C8352 0.1 F
C8353 0.01 B
C8354 0.1 F
C8355 0.01 B
C8356 0.1 F
C8357 16V47 YK
C8358 0.01 B
C8359 0.1 F
C8370 25V10 KA
C8371 25V10 KA
C8372 25V10 KA
C8373 25V10 KA
C8374 25V10 KA
C8375 25V10 KA
C8366 50V10 NA
C8367 25V10 KA
C8349 680P CH
C8350 680PCH
C8360 100P CH
C8361 100PCH
C8362 16V 22 KA
C8363 16V22 KA
C8364 16V 100YK
C8365 16V 0.1 F
C8368 0.1 F
C8369 16V100 KA
R8345 15K +-1%
R8343 15K +-1%
R8338 10K +-1%
R8339 10K +-1%
R8340 560 +-1%
R8341 560 +-1%
R8342 6.8K +-1%
R8344 6.8K +-1%
R8346 100
R8347 100
R8348 100
R8349 100
R8350 56 1/4W
R8351 22K
R8352 6.8K
R8304 820 1/4W
W824 DVD_Y_V_OUT
W821 DVD_C_V_OUT
VCR_V_OUT1
V_SW_VCR-H
DVD_V_OUT
F/R_VIDEO_Y
REAR_V_IN
VCR_V_SW_R-H
FRONT_V_IN
F/R_VIDEO_C
F/R_VIDEO
TU/VCR_VIDEO
REAR_Y_IN
FRONT_Y_IN
REAR_C_IN
FRONT_C_IN
DVD_V_SW_R-H
FRONT_V_IN
CH_V_MUTE-H
VCR_V_OUT1
VCR_DUB-H
TU_V_OUT
DVD_A_L
DVD_A_R
DVD_A_OUT_L
DVD_A_OUT_R
29
28
22
23
62
27
TUNER VIDEO SIGNAL
PLAYBACK LUMINANCE SIGNAL
PLAYBACK COLOR SIGNAL
RECORD COLOR SIGNAL
RECORD LUMINANCE SIGNAL
AUDIO SIGNAL(REC)
AUDIO SIGNAL(PB)

B 7/7

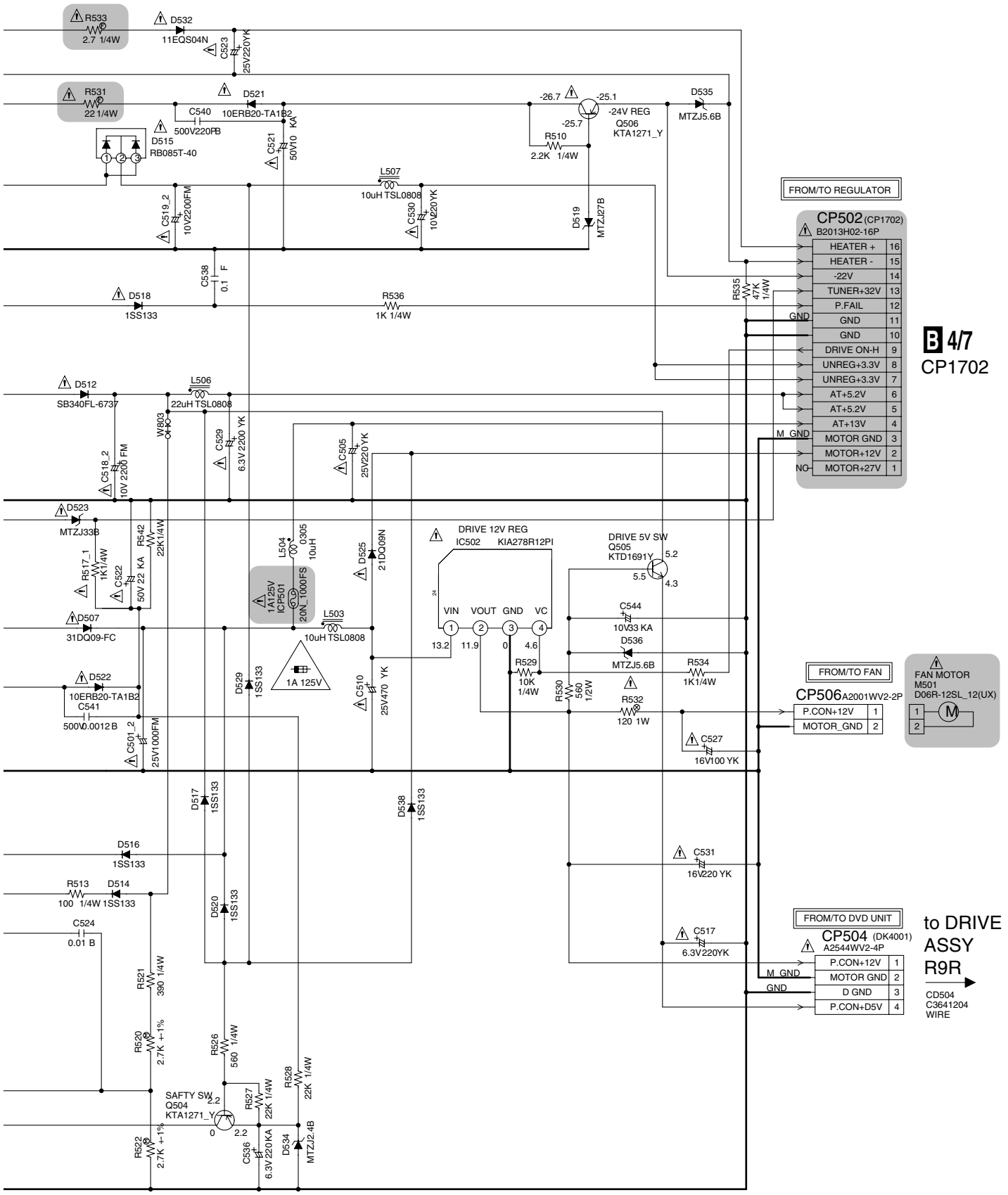
3.16 POWER PCB ASSY

C POWER PCB ASSY(A2G002H240)



PRIMARY SIDE

* The parts except ▭ mark cannot be changed.
On that occasion, replace whole Assy.



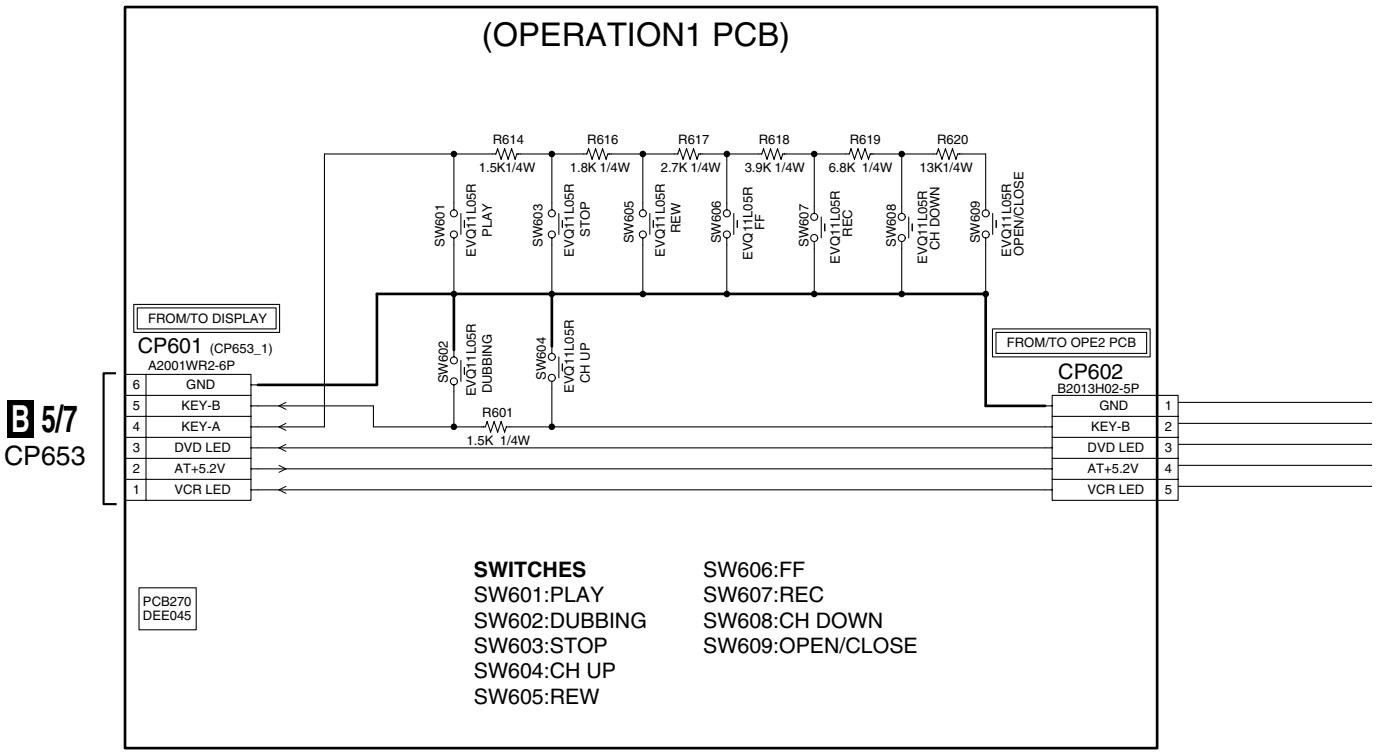
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

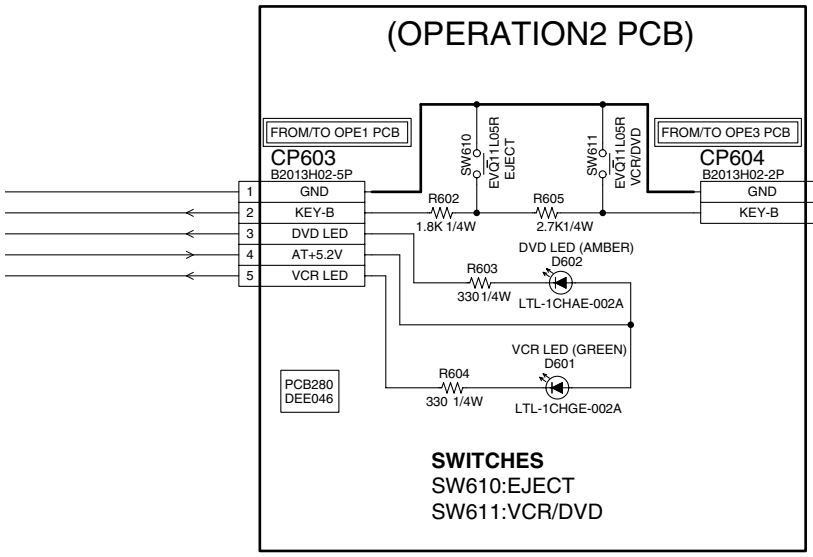
C

3.17 OPERATION 1 PCB, OPERATION 2 PCB and OPEARTION 3 PCB ASSYS

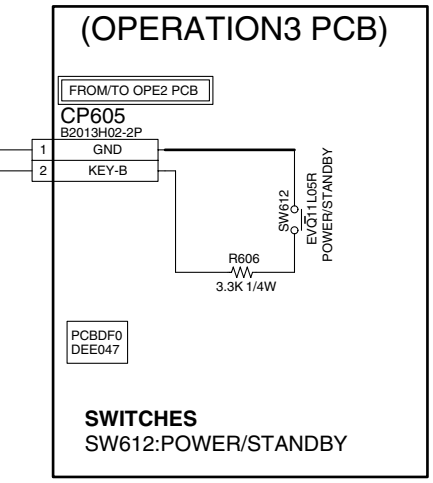
D OPERATION1 PCB ASSY
(A2G002H270)



E OPERATION2 PCB ASSY (A2G002H280)



F OPERATION3 PCB ASSY (A2G002HDF0)



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

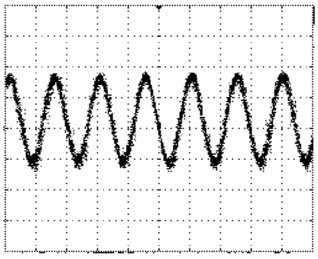
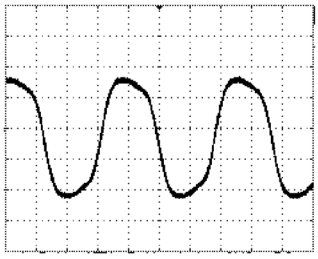
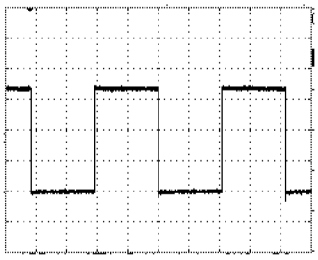
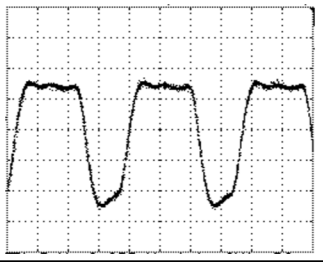
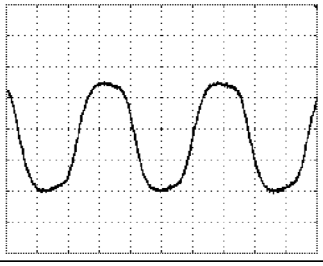
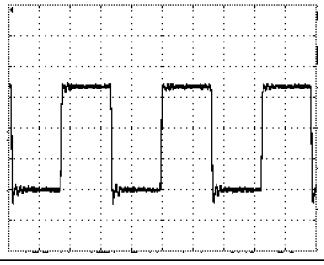
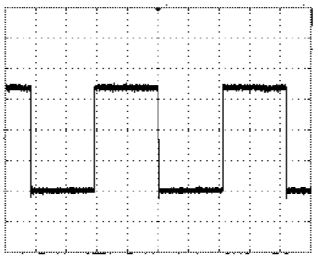
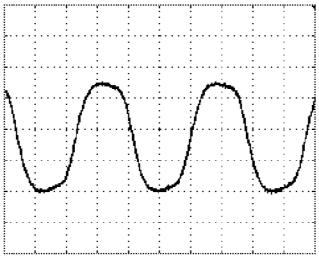
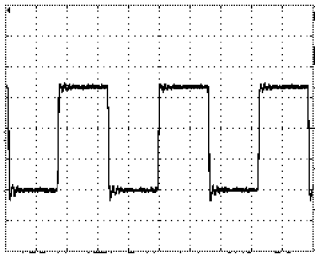
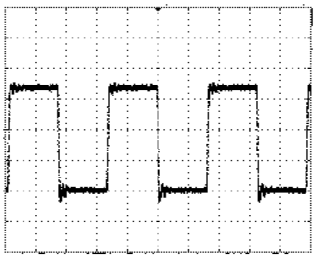
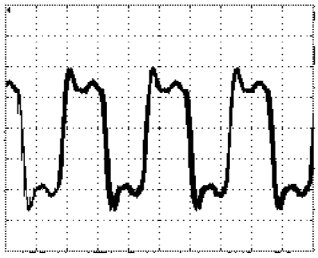
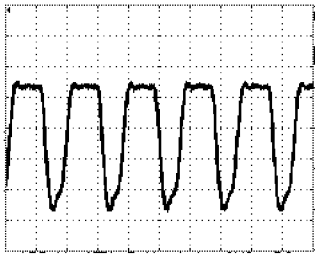
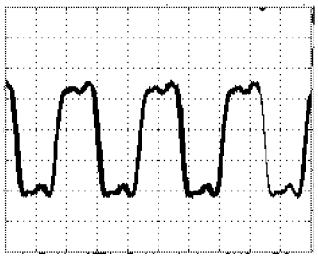
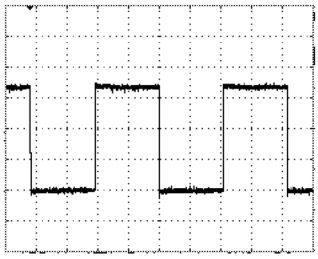
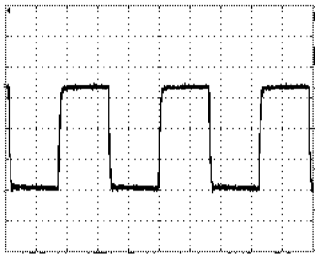
NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

E F

3.18 WAVE FORMS

Note: The encircled numbers denote measuring point in the schematic diagram.

A DVD/HD MPEG PCB ASSY

① **IC4008-pin 38 (MCLK)** V: 500mV/div. H: 5nsec/div. 	⑥ **IC4009-pin 147 (27MHz_OSC)** V: 1.0V/div. H: 10nsec/div. 	⑪ **IC4001-pin 109 (ALRCLKO)** V: 1.0V/div. H: 5µsec/div. 
② **IC4009-pin 189 (SBCLK)** V: 1.0V/div. H: 10nsec/div. 	⑦ **IC4001-pin 21 (ATDMARQ)** V: 1.0V/div. H: 10nsec/div. 	⑫ **IC4001-pin 110 (I55_ABCLK)** V: 1.0V/div. H: 100nsec/div. 
③ **IC4009-pin 182 (ALRCLK)** V: 1.0V/div. H: 5µsec/div. 	⑧ **IC4001-pin 35 (GCLKA)** V: 1.0V/div. H: 10nsec/div. 	⑬ **IC4001-pin 119 (ABCLKO)** V: 1.0V/div. H: 100nsec/div. 
④ **IC4009-pin 181 (I55_ABCLK)** V: 1.0V/div. H: 100nsec/div. 	⑨ **IC4001-pin 99 (VADDIS_AMCLK)** V: 1.0V/div. H: 20nsec/div. 	⑭ **IC4001-pin 142 (SBCLK)** V: 1.0V/div. H: 20nsec/div. 
⑤ **IC4009-pin 177 (I55_AMCLK)** V: 1.0V/div. H: 20nsec/div. 	⑩ **IC4001-pin 100 (I55_ALRCK)** V: 1.0V/div. H: 5µsec/div. 	⑮ **IC4001-pin 144 (SPDIF)** V: 1.0V/div. H: 200nsec/div. 

A

B

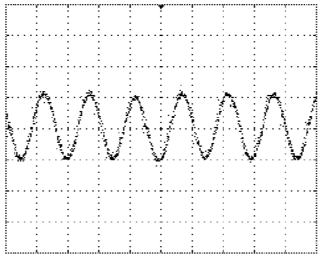
C

D

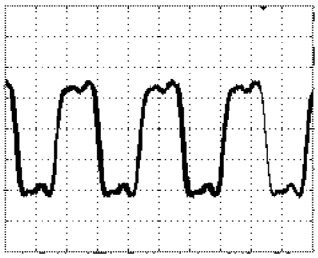
E

F

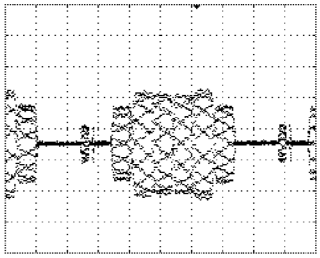
16 **IC4005-pin 38 (PCLK)**
V: 500mV/div. H: 5nsec/div.



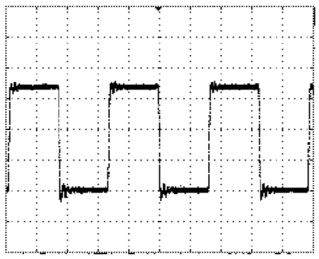
21 **IC7301-pin 16 (VADDIS_AMCLK)**
V: 1.0V/div. H: 20nsec/div.



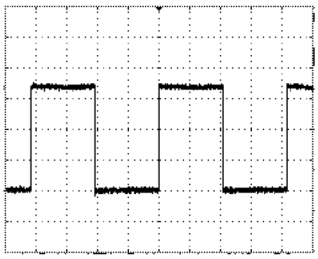
26 **CP7302-pin 13 (C_OUT)**
V: 500mV/div. H: 10µsec/div.



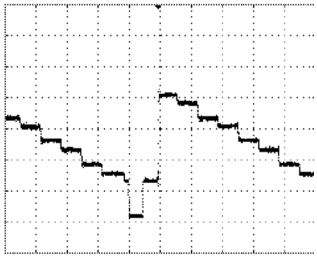
17 **IC7303-pin 2 (ABCLKO)**
V: 1.0V/div. H: 100nsec/div.



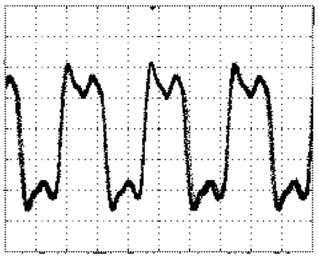
22 **IC7301-pin 3 (I55_ALRCLKO)**
V: 1.0V/div. H: 5µsec/div.



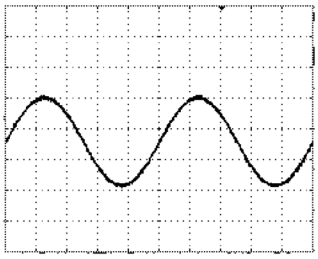
27 **CP7301-pin 17 (Y_VIDEO_IN)**
V: 500mV/div. H: 10µsec/div.



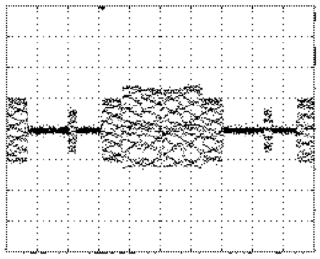
18 **IC7303-pin 3 (155_AMCLK)**
V: 1.0V/div. H: 20nsec/div.



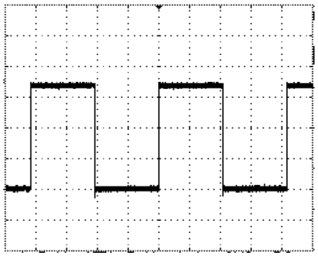
23 **CP7301-pin 13 (FL_IN)**
V: 1.0V/div. H: 200µsec/div.



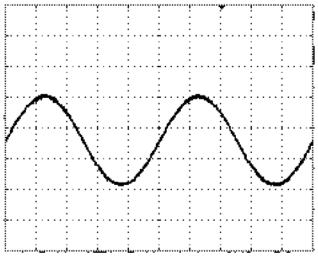
28 **CP7301-pin 19 (C_VIDEO_IN)**
V: 200mV/div. H: 10µsec/div.



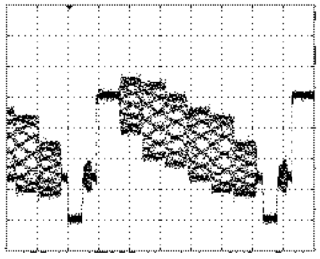
19 **IC7303-pin 5 (ALRCLK)**
V: 1.0V/div. H: 5µsec/div.



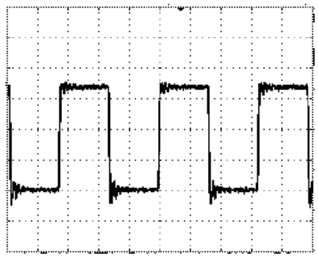
24 **CP7301-pin 15 (FR_IN)**
V: 1.0V/div. H: 200µsec/div.



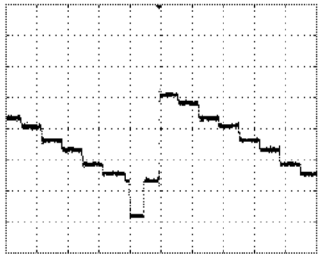
29 **IC7302-pin 1 (TU_VIDEO)**
V: 200mV/div. H: 10µsec/div.



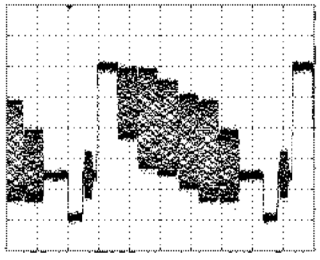
20 **IC7301-pin 1 (I55_ABCLKO)**
V: 1.0V/div. H: 100nsec/div.



25 **CP7302-pin 9 (Y_OUT)**
V: 500mV/div. H: 10µsec/div.

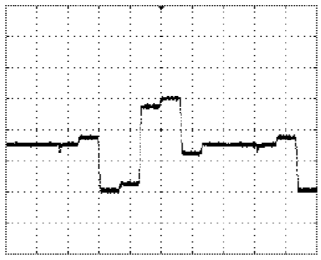


30 **IC7302-pin 19 (COMPOSITE_IN)**
V: 200mV/div. H: 10µsec/div. EE

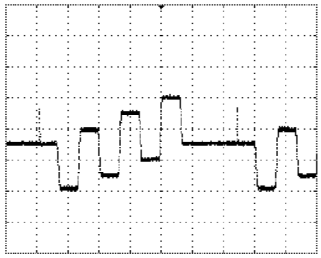


B VCR MT PCB ASSY

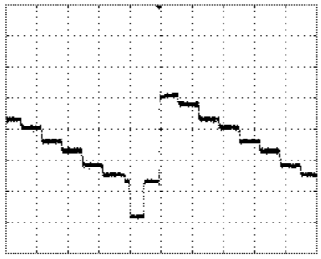
31 CP7302-pin 3 (V/R_OUT)
V: 500mV/div. H: 10µsec/div.



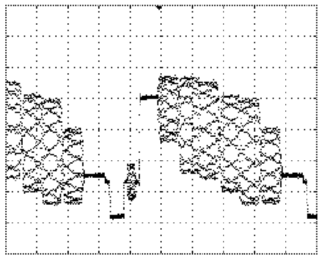
32 CP7302-pin 5 (U/B_OUT)
V: 500mV/div. H: 10µsec/div.



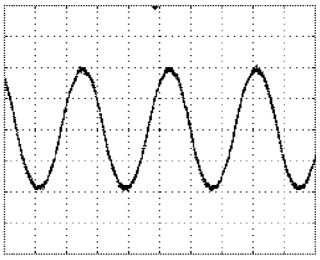
33 CP7302-pin 7 (Y/G_OUT)
V: 500mV/div. H: 10µsec/div.



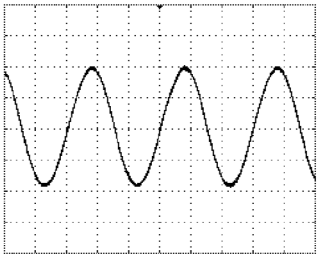
34 CP7302-pin 11 (CVBS_OUT)
V: 500mV/div. H: 10µsec/div.



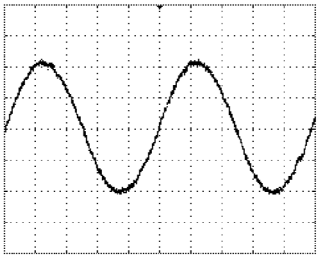
1 IC101-pin 49 (Xtal) VCR PLAY
V: 100mV/div. H: 100nsec/div.



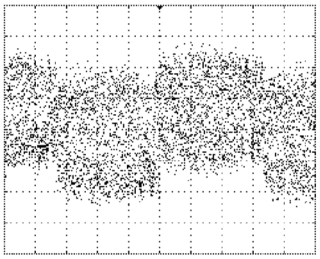
2 CP103-pin 1 (FE HEAD +) VCR REC
V: 20V/div. H: 5µsec/div.



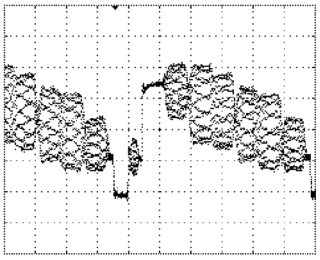
3 IC101-pin 10 (NORMAL_A_OUT)
VCR PLAY
V: 20mV/div. H: 200µsec/div.



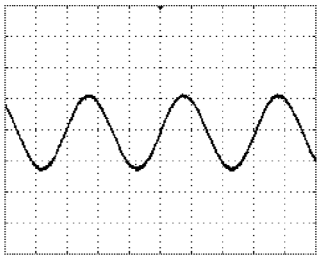
4 TP101 (V. ENV) VCR PLAY
V: 10mV/div. H: 5msec/div.



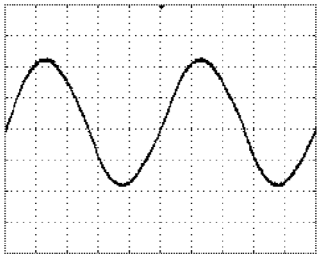
5 IC101-pin 26 (VCR_VOUT1) VCR PLAY
V: 500mV/div. H: 10µsec/div.



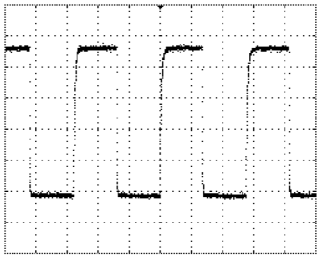
6 IC3001-pin 76 (X1) VCR PLAY
V: 500mV/div. H: 10µsec/div.



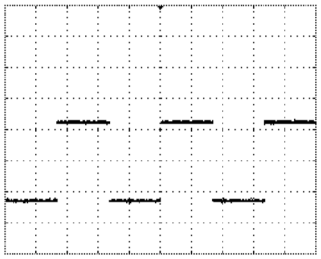
7 IC3001-pin 80 (OSC2) VCR PLAY
V: 1.0V/div. H: 20nsec/div.



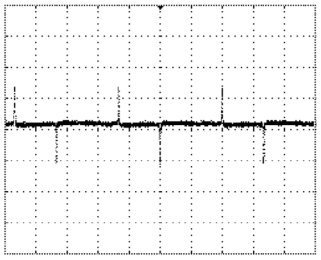
8 IC3001-pin 104 (D_FG/PG) VCR PLAY
V: 500mV/div. H: 500µsec/div.



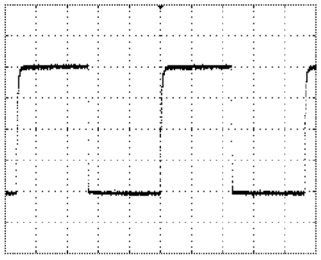
9 IC3001-pin 105 (H. SW) VCR PLAY
V: 2.0V/div. H: 10msec/div.



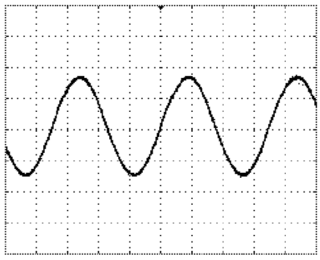
10 IC3001-pin 8 (CTL_SMT(I)) VCR PLAY
V: 1.0V/div. H: 10msec/div.



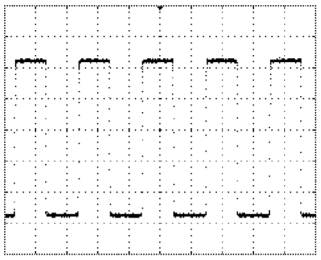
⑪ IC3001-pin 9 (CAP_FG) VCR PLAY
V: 1.0V/div. H: 200µsec/div.



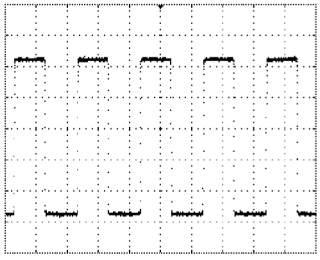
⑫ IC3001-pin 22 (4FSCIN/2FSCIN)
VCR PLAY
V: 1.0V/div. H: 20nsec/div.



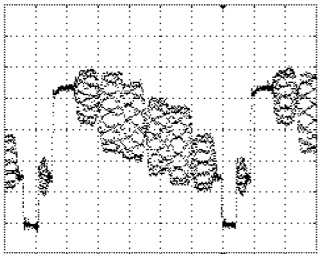
⑬ Q3005-pin 3 (REEL_T) VCR PLAY
V: 1.0V/div. H: 500msec/div.



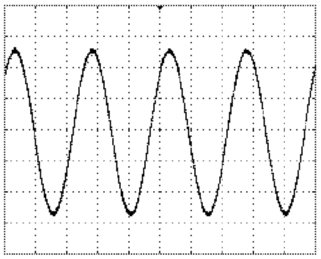
⑭ Q3001-pin 6 (REEL_S) VCR PLAY
V: 1.0V/div. H: 500msec/div.



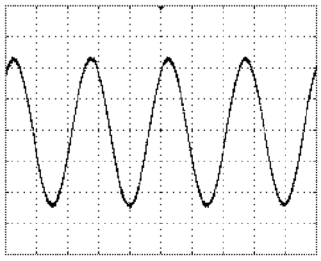
⑮ J8005-pin 5 (V) VCR PLAY
V: 200mV/div. H: 10µsec/div.



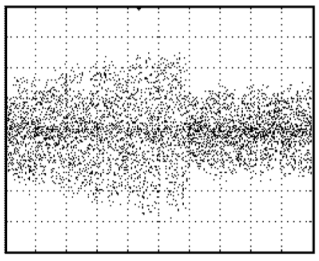
⑯ IC701-pin 78 (HIFI_A_OUT_R)
VCR PLAY
V: 200mV/div. H: 1msec/div.



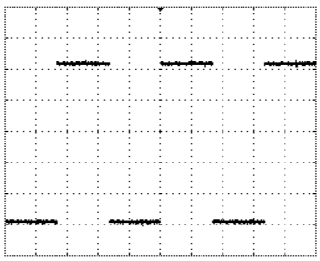
⑰ IC701-pin 80 (HIFI_A_OUT_L)
VCR PLAY
V: 200mV/div. H: 1msec/div.



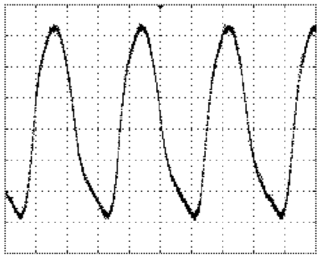
⑱ IC701-pin 33 (HIFI_ENV.) VCR PLAY
V: 200mV/div. H: 2msec/div.



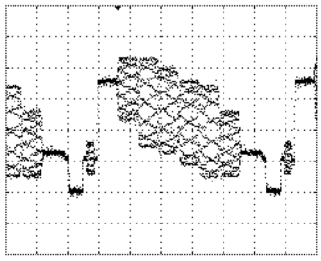
⑲ IC701-pin 39 (HIFI_H. SW) VCR PLAY
V: 1.0V/div. H: 10msec/div.



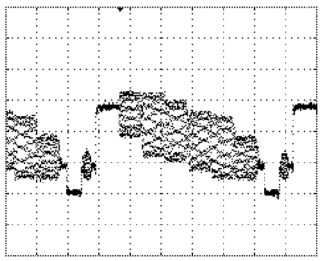
⑳ IC701-pin 2 (ALC_A_OUT) VCR PLAY
V: 200mV/div. H: 100nsec/div.



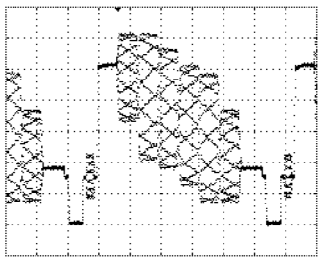
㉒ IC8309-pin 7 (F/R_VIDEO) VIDEO IN
V: 200mV/div. H: 10µsec/div.



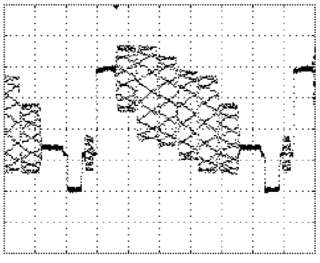
㉓ IC8310-pin 7 (TU/VCR_VIDEO)
TUNER IN
V: 20mV/div. H: 10µsec/div.



㉔ IC8303-pin 7 (F/R_V_IN) VIDEO IN
V: 200mV/div. H: 10µsec/div.

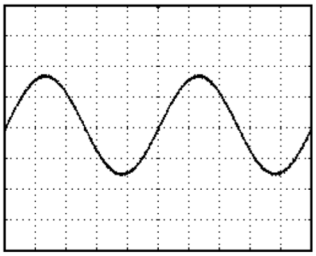


㉕ IC8302-pin 7 (SW_V_OUT) VCR PLAY
V: 50mV/div. H: 10µsec/div.

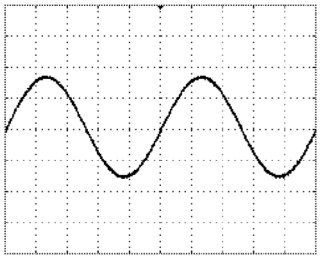


C POWER PCB ASSY

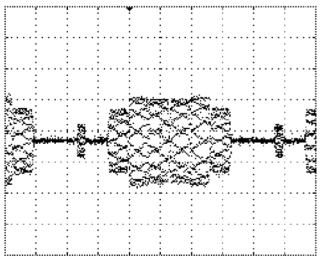
26 **IC8311-pin 1 (DVD_A_OUT_L)**
DVD PLAY
V: 100mV/div. H: 200µsec/div.



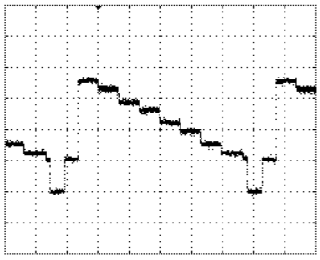
27 **IC8311-pin 7 (DVD_A_OUT_R)**
DVD PLAY
V: 100mV/div. H: 200µsec/div.



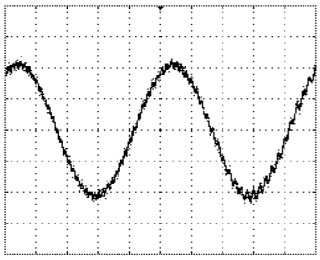
28 **IC8308-pin 7 (F/R_VIDEO_C)** VIDEO IN
V: 20mV/div. H: 10µsec/div.



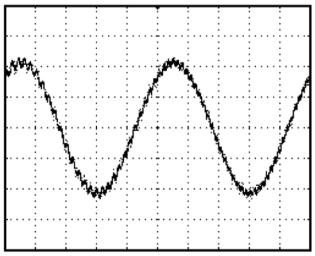
29 **IC8307-pin 7 (F/R_VIDEO_Y)** VIDEO IN
V: 20mV/div. H: 10µsec/div.



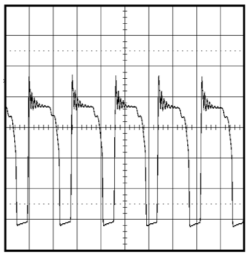
30 **CP8303-pin 16 (ST_A_OUT_L)**
TUNER IN
V: 20mV/div. H: 200µsec/div.



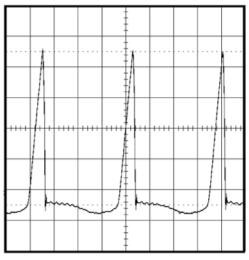
31 **CP8303-pin 14 (ST_A_OUT_R)**
TUNER IN
V: 200mV/div. H: 200µsec/div.



1 **Foot of R516** DVD PLAY
V: 50V/div. H: 5µsec/div.



2 **Q501-Gate** DVD PLAY
V: 1.0V/div. H: 1µsec/div.



A

B

C

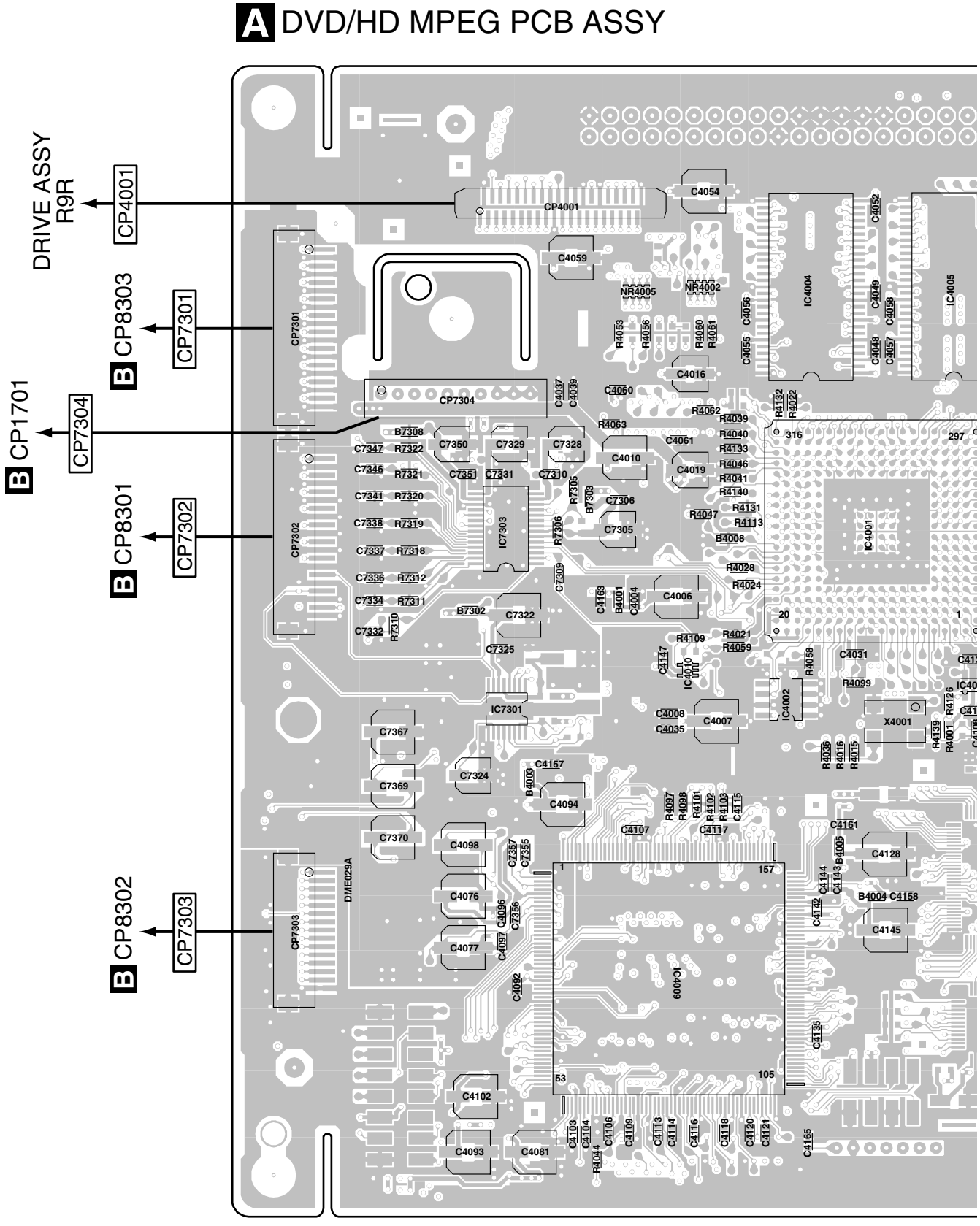
D

E

F

4. PCB CONNECTION DIAGRAM
4.1 DVD/HD MPEG PCB ASSY

SIDE A



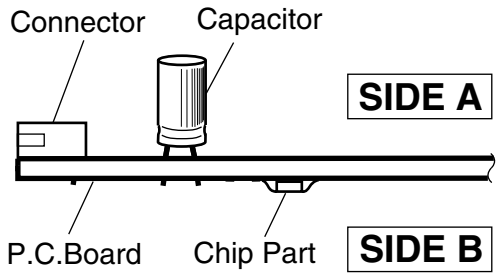
SIDE A

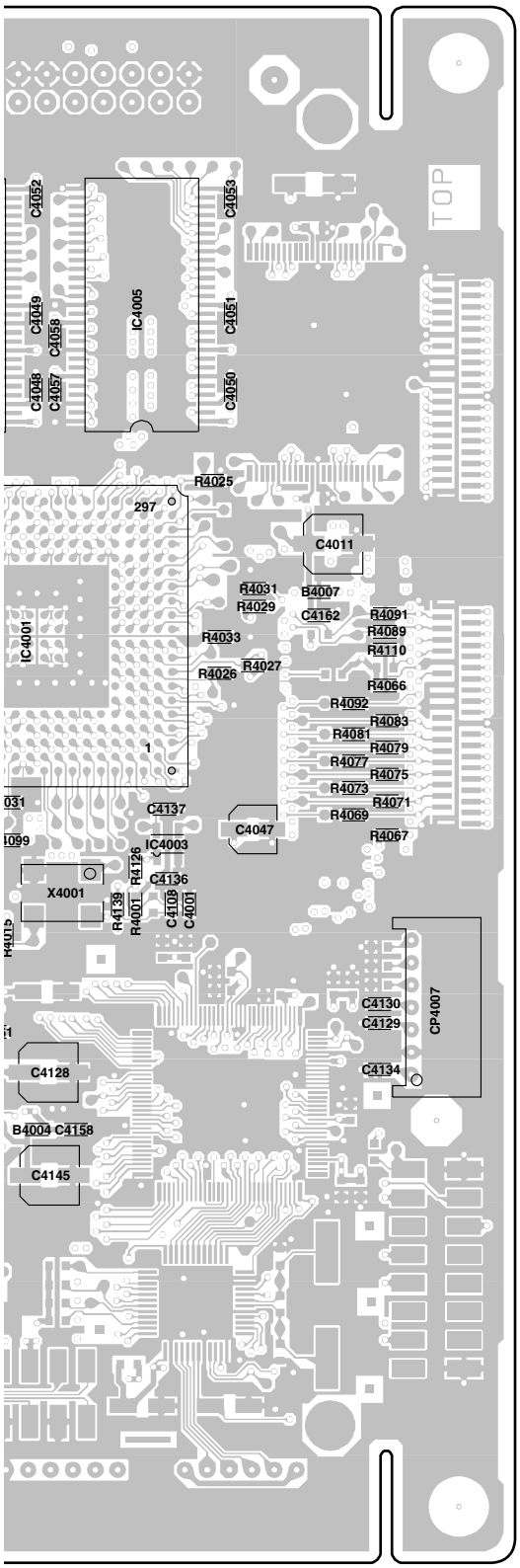
NOTE FOR PCB DIAGRAMS :

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol In PCB Diagrams	Symbol In Schematic Diagrams	Part Name
B C E	B C E B C E	Transistor
B C E	B C E B C E	Transistor with resistor
D G S	D G S D G S	Field effect transistor
		Resistor array
		3-terminal regulator

3. The parts mounted on this PCB include all necessary parts for several destinations.
   For further information for respective destinations, be sure to check with the schematic diagram.
4. View point of PCB diagrams.





CP4007

IC4004 IC4005

IC7303 IC4001

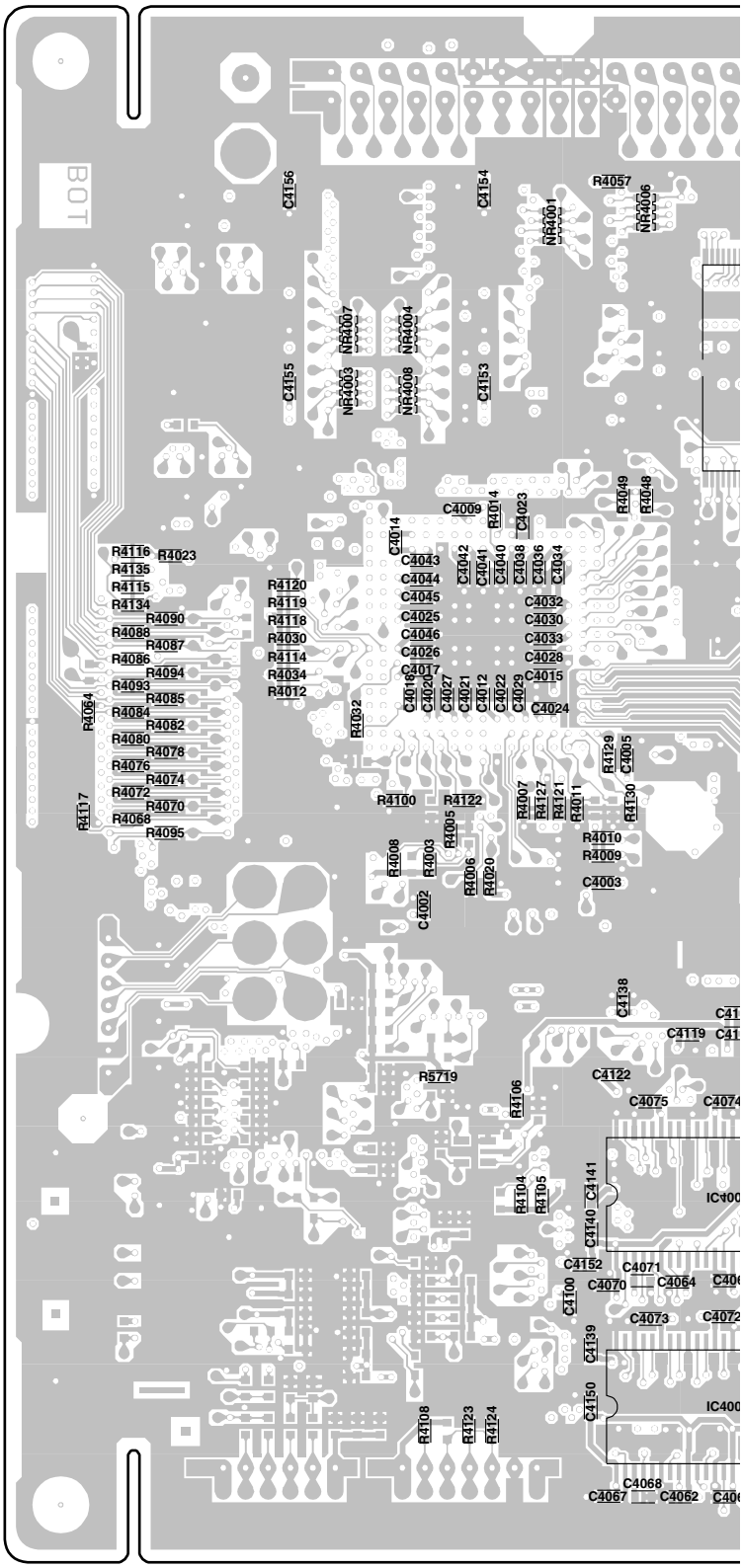
IC4003

IC4002 IC7301

IC4009

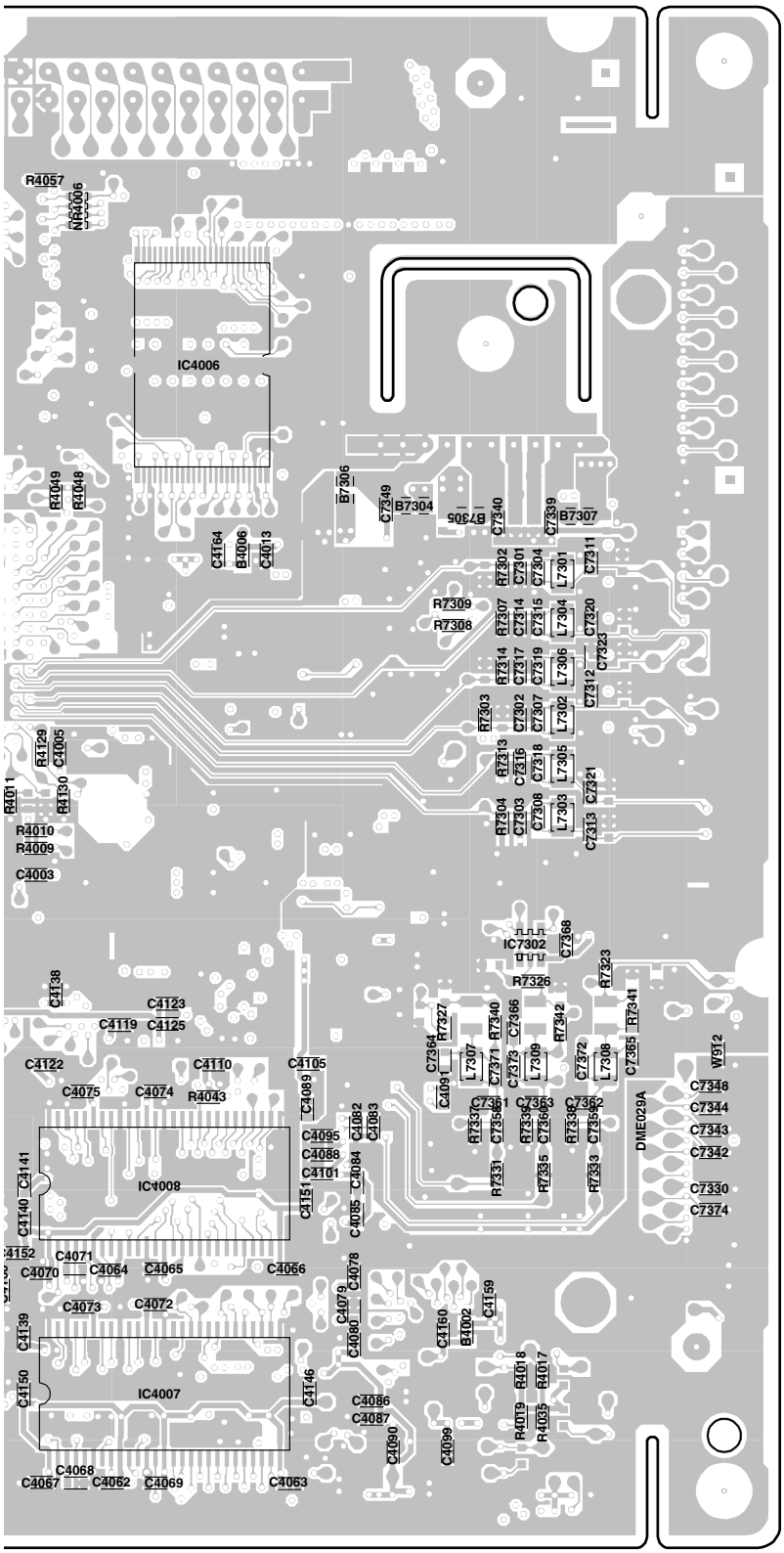
SIDE B

A DVD/HD MPEG PCB ASSY



SIDE B

Y

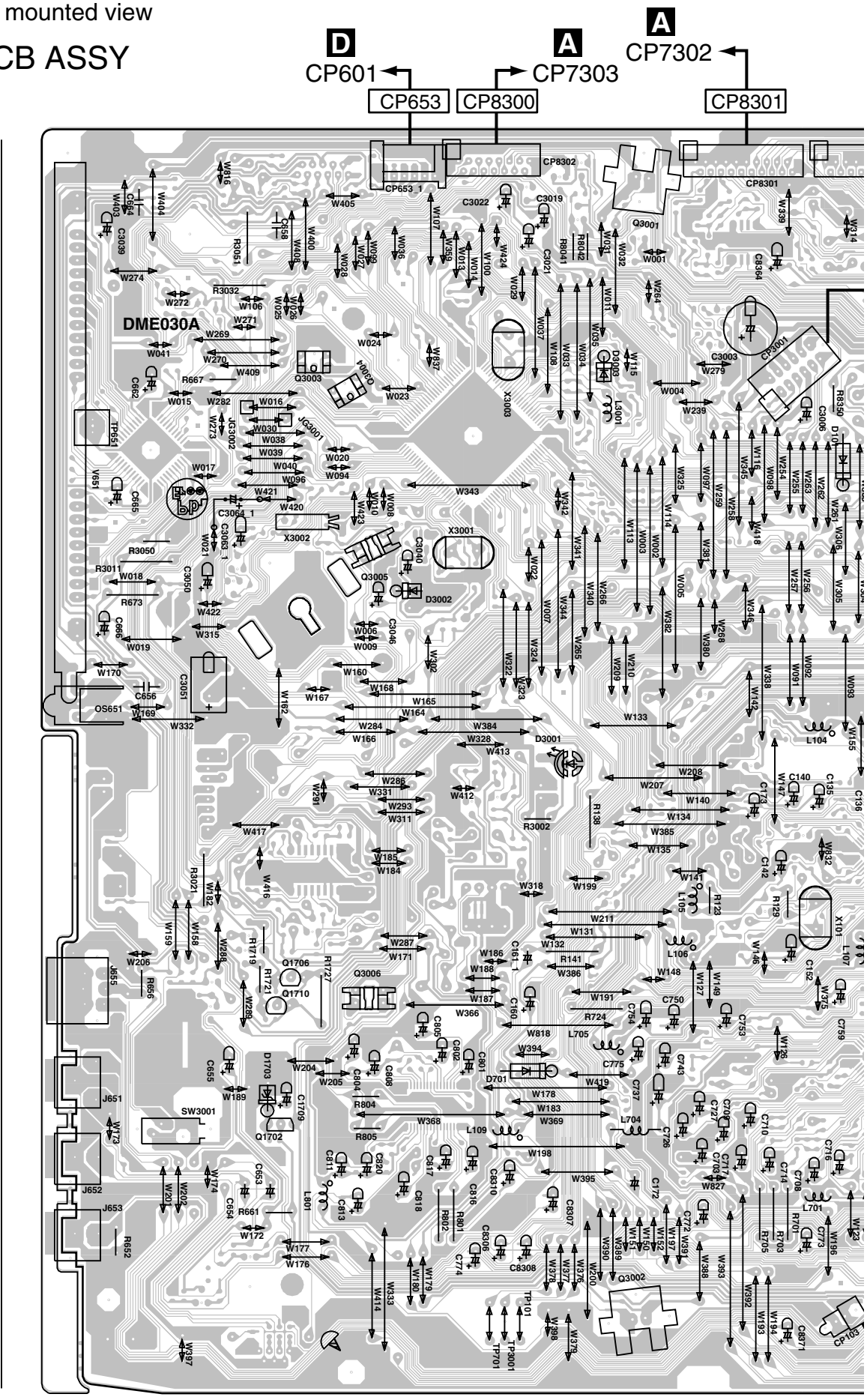


CP7304

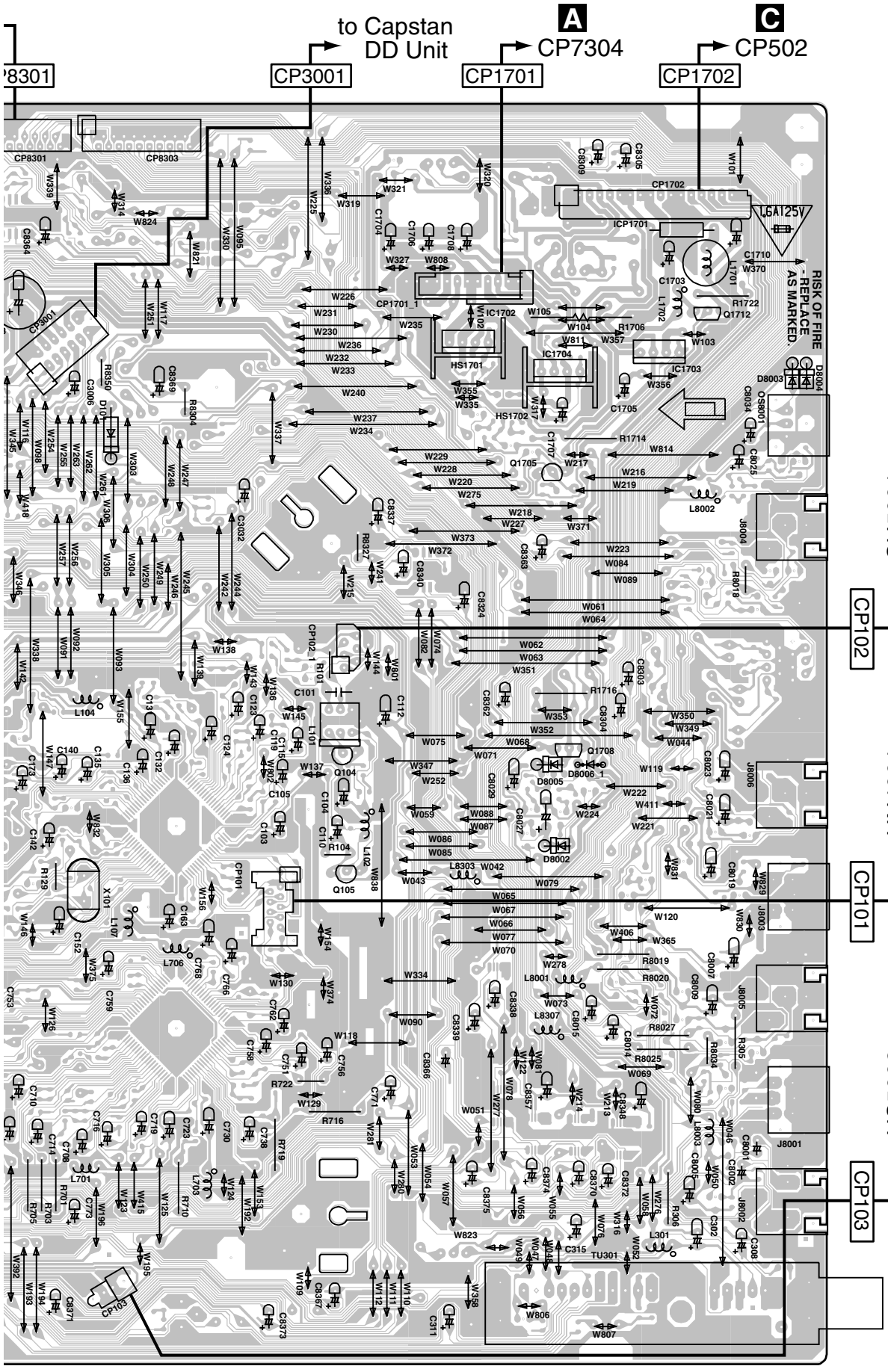
4.2 VCR MT PCB ASSY

SIDE A • Parts mounted view

B VCR MT PCB ASSY



SIDE A


to Capstan DD Unit
A
CP7304
C
CP502
CP8301
CP3001
CP1701
CP1702
CP8303
CP3901
CP1701_1
IC1702
IC1704
IC1703
HS1701
HS1702
ICP1701
CP1702
L6A|25V
RISK OF FIRE - REPLACE AS MARKED.
D8004
D8003
OS8001
L8002
J8004
CH5001
CP102
CP102_1
J8006
UN4001
CP101
CP101_1
J8003
J8005
J8001
HS5002
CP103
CP103_1
J8002
TU301
L8001
L8303
L8307
D8002
D8005
D8006_1
Q1705
Q1708
Q104
Q105
X101
L104
L101
L107
L706
L701
L703
L301
L8003
R1722
Q1712
R1706
R1714
R1716
R8019
R8020
R8027
R8025
R8018
R8350
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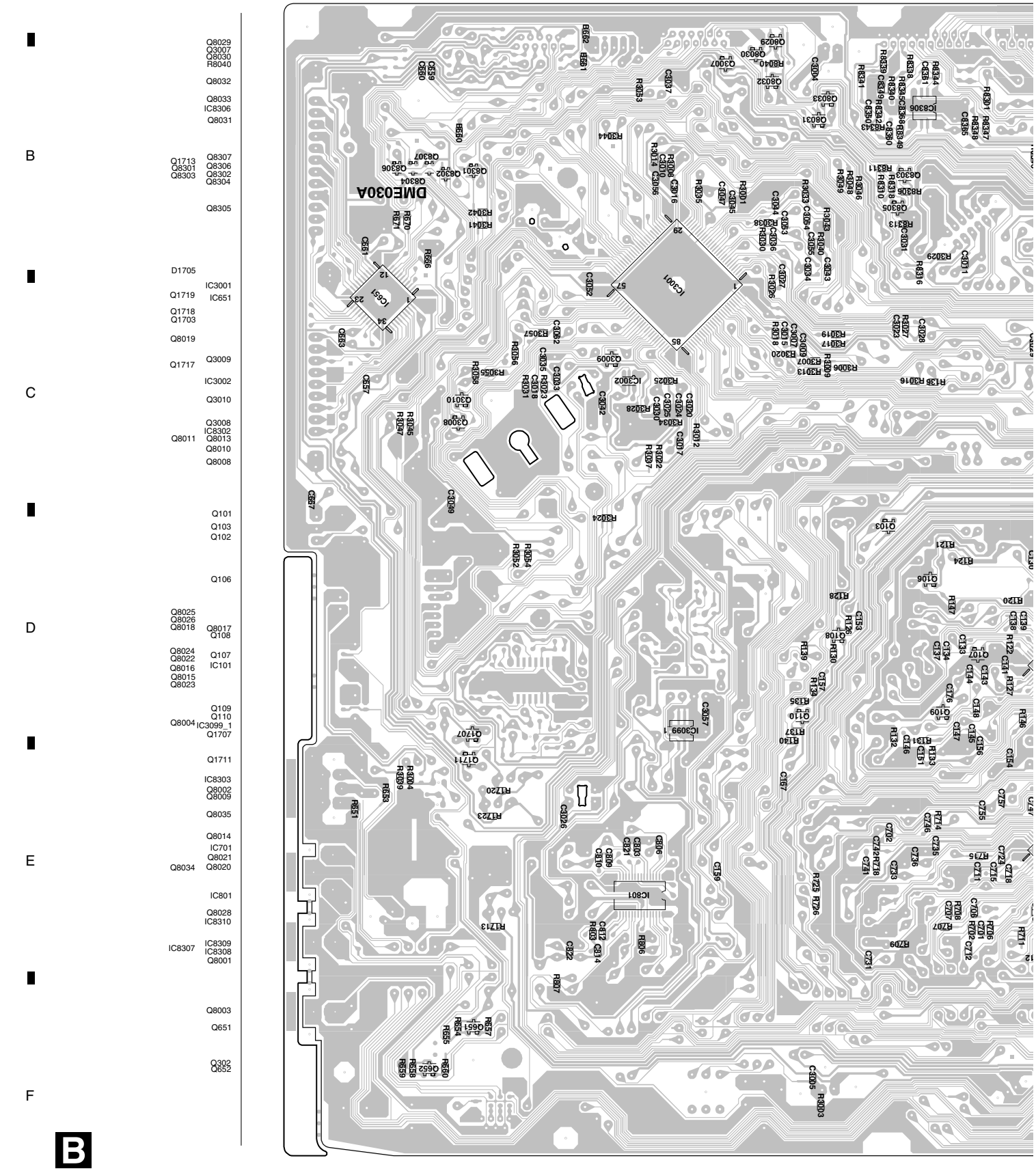
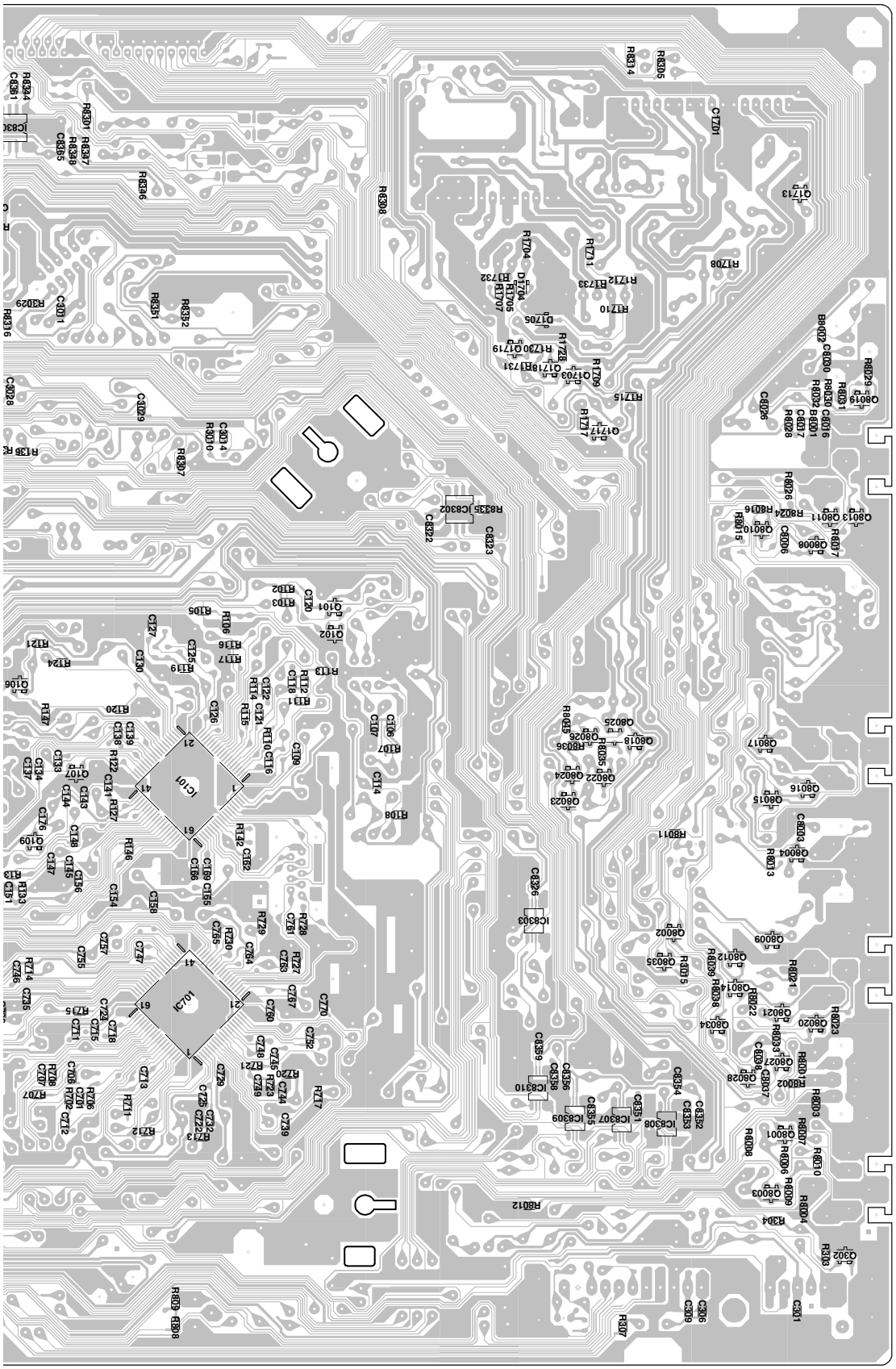
SIDE B • Chip-parts mounted view

B VCR MT PCB ASSY



SIDE B



4.3 POWER PCB ASSY

SIDE A

SIDE A

C POWER PCB ASSY

B CP1702

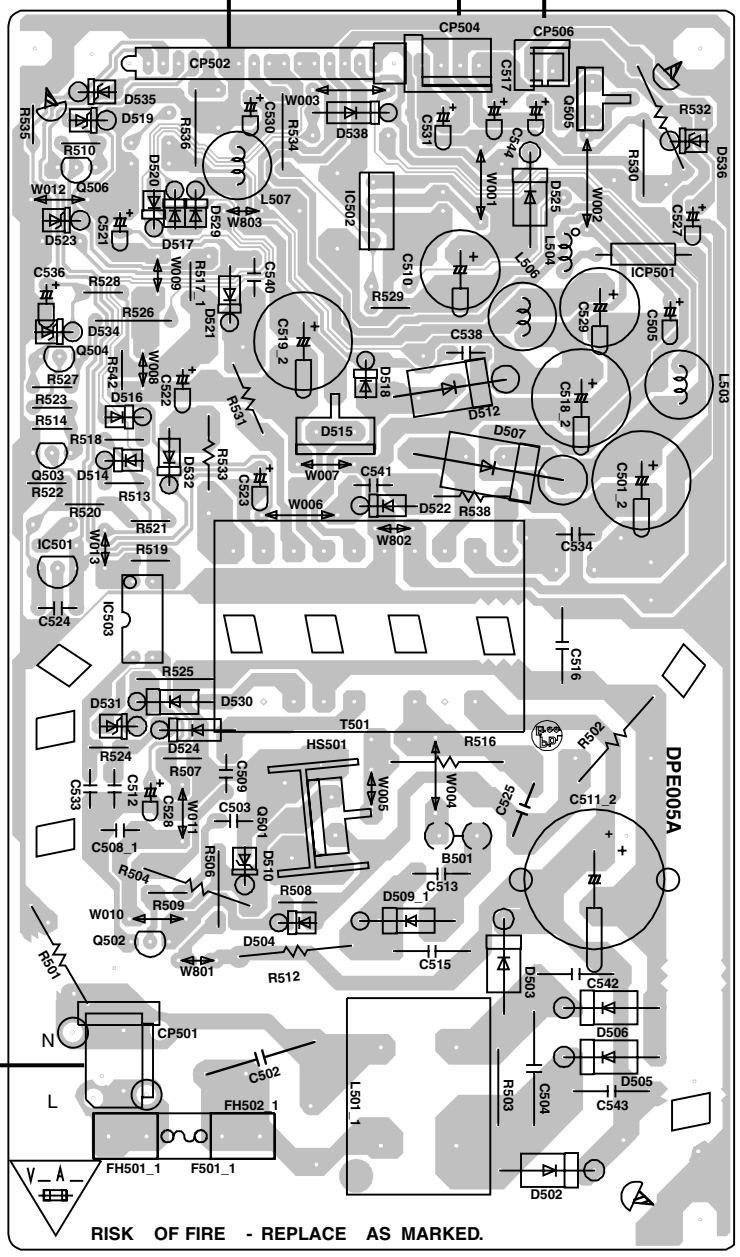
CP502

DRIVE ASSY
R9R

CP502

FAN
MOTOR

CP506



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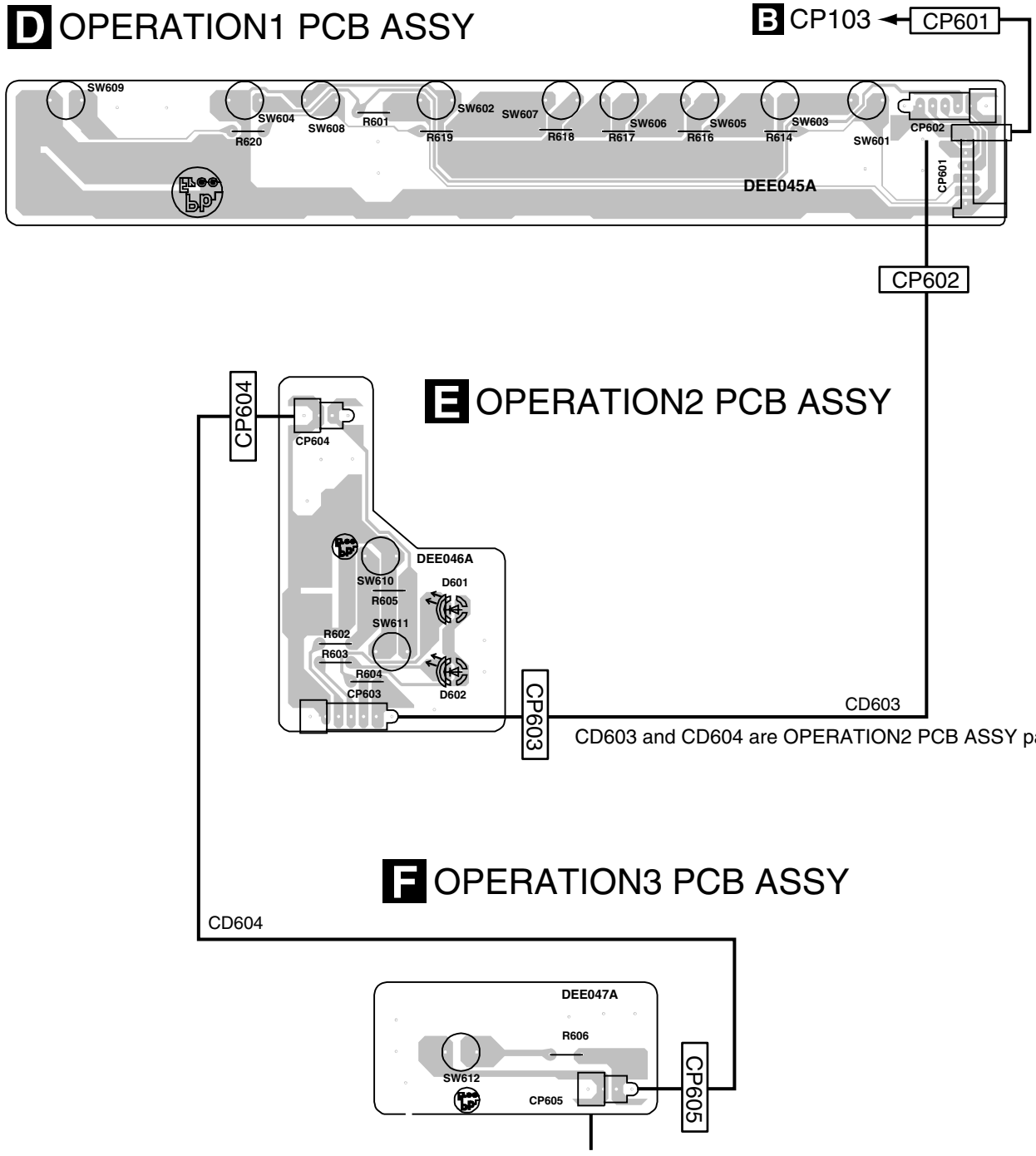
4.4 OPERATION PCB ASSY

SIDE A

SIDE A



5. PCB PARTS LIST

NOTES: ● *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*

● *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*

● *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 Ω → 56 x 10[1] → 561 ..... RD1/4PU 5 6 1 J
47k Ω → 47 x 10[3] → 473 ..... RD1/4PU 4 7 3 J
0.5 Ω → R50 ..... RN2H R 5 0 K
1 Ω → 1R0 ..... RS1P 1 R 0 K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω → 562 x 10[1] → 5621 ..... RN1/4PC 5 6 2 1 F

LIST OF ASSEMBLIES

Mark No.	Description	Part No.
	1..DVD/HD MPEG ASSY (RT501)	A2G002HB10
	1..DVD/HD MPEG ASSY (RT401)	A2G003HB10
	1..VCR MT PCB ASSY	A2G002H010
	1..POWER PCB ASSY	A2G002H240
	1..OPERATION 1 PCB ASSY	A2G002H270
	1..OPERATION 2 PCB ASSY	A2G002H280
	1..OPERATION 3 PCB ASSY	A2G002HDF0

SEMICONDUCTORS

Mark No.	Description	Part No.
IC101	IC LA71206M-MPB	I03F3206M0
IC651	IC PT6315	IF4K063150
IC701	IC LA72670BM-L-MPB-E	I03F670BM0
IC801	IC AN5832SA-E1V	I01FF58320
⚠IC1702	IC PQ070XF01SZH	I0GA9XF010
⚠IC1703	IC KIA78R12API	I1KA98R12A
⚠IC1704	IC PQ070XF01SZH	I0GA9XF010
IC3001	IC OEC0156A	I54F50156A
IC3002	IC PST3231NR	I9UF032310
IC3099	MEMORY DATA BR24L08F-WE2	S2G002HE03
IC4002	MEMORY DATA (for RT501) (BR24L16FJ-WE2)	S2G002HE02
IC4002	MEMORY DATA (for RT401) (BR24L16FJ-WE2)	S2G002HE05
IC4003	IC BD5229G-TR	I97F052290
IC4004	IC MT48LC8M16A2P-7E	IF6J08M167
IC4005	IC MT48LC8M16A2P-7E	IF6J08M167
IC4006	MEMORY DATA M5M29KT331AVP	S2G002HF01
IC4007	IC MT48LC8M16A2P-7E	IF6J08M167
IC4008	IC MT48LC8M16A2P-7E	IF6J08M167
IC4009	IC ZR35100PQCG	ICQK0PQCG0
IC4010	IC SN74LVC1G125DCKR	I5CJ0G1250
IC7301	IC PCM1753DBQR	I17F017530
IC7302	IC MM1501XNRE	I0UF015010
IC7303	IC WM8775SEDS/R	IFJJ0775S0
IC8302	IC NJM2246M-TE1	I0QF02246M
IC8303	IC NJM2533V(TE2)	I0QF02533V
IC8306	IC NJM2068M(TE1)	I0QF020680
IC8307	IC NJM2534V(TE2)	I0QF02534V
IC8308	IC NJM2534V(TE2)	I0QF02534V
IC8309	IC NJM2534V(TE2)	I0QF02534V
IC8310	IC NJM2534V(TE2)	I0QF02534V
Q101	TRANSISTOR ,SILICON KTC3875S_Y_RTK	TCAA3875SY
Q102	TRANSISTOR ,SILICON KTC3875S_Y_RTK	TCAA3875SY
Q103	COMPOUND TRANSISTOR KRA103SRTK	TPAAC05002
Q104	TRANSISTOR ,SILICON KTC3203_Y-AT	TCAT032034
Q105	TRANSISTOR ,SILICON KTA1266-AT	TAATA12660
Q106	TRANSISTOR ,SILICON KTA1504SYRTK	TAAA1504SY
Q107	TRANSISTOR ,SILICON KTA1504S_Y_RTK	TAAA1504SY
Q108	TRANSISTOR ,SILICON KTA1504S_Y_RTK	TAAA1504SY
Q109	TRANSISTOR ,SILICON KTC3875S_Y_RTK	TCAA3875SY
Q110	TRANSISTOR ,SILICON KTC3875S_Y_RTK	TCAA3875SY
Q302	TRANSISTOR ,SILICON KTC3875S_Y_RTK	TCAA3875SY
Q651	TRANSISTOR ,SILICON KTC3875S_Y RTK	TCAA3875SY
Q652	TRANSISTOR ,SILICON KTC3875S_Y_RTK	TCAA3875SY
Q1702	TRANSISTOR ,SILICON KTC3209Y-AT	TCAT03209Y
Q1703	COMPOUND TRANSISTOR KRA103SRTK	TPAAC05002
⚠Q1705	TRANSISTOR ,SILICON KTA1271_Y-AT	TAAT012714
Q1706	TRANSISTOR ,SILICON KTC3203_Y-AT	TCAT032034
Q1707	COMPOUND TRANSISTOR KRA101SRTK	TPAAA05001
Q1708	TRANSISTOR ,SILICON KTC3209_Y-AT	TCAT03209Y
Q1710	TRANSISTOR ,SILICON KTC3203_Y-AT	TCAT032034
Q1711	COMPOUND TRANSISTOR KRA103SRTK	TPAAC05002
Q1712	TRANSISTOR ,SILICON KTA1281_Y	TAAT01281Y
Q1713	COMPOUND TRANSISTOR KRC103SRTK	TNAAC05002
Q1717	COMPOUND TRANSISTOR KRC103SRTK	TNAAC05002
Q1718	TRANSISTOR ,SILICON KTA1504S_Y_RTK	TAAA1504SY
Q1719	COMPOUND TRANSISTOR KRC104SRTK	TNAAD05001
Q3001	PHOTO TRANSISTOR ST-304L	0000M00390
Q3002	PHOTO TRANSISTOR ST-304L	0000M00390
Q3003	PHOTO COUPLER RPI-352C40N	0002700680
Q3004	PHOTO COUPLER RPI-352C40N	0002700680
Q3005	PHOTO COUPLER RPI-303	0002700690
Q3006	PHOTO COUPLER RPI-303	0002700690
Q3007	COMPOUND TRANSISTOR KRA101SRTK	TPAAA05001
Q3008	TRANSISTOR,SILICON 2SC2412KT146	T8YJ2412K0
Q3009	COMPOUND TRANSISTOR DTC124EKAT146	TNYJC05001
Q3010	COMPOUND TRANSISTOR DTA124EKAT146	TPYJC05001
Q8001	TRANSISTOR ,SILICON KTC3875SYRTK	TCAA3875SY
Q8002	COMPOUND TRANSISTOR KRA103SRTK	TPAAC05002
Q8003	TRANSISTOR ,SILICON KTC3875SYRTK	TCAA3875SY
Q8004	COMPOUND TRANSISTOR KRC103SRTK	TNAAC05002
Q8008	COMPOUND TRANSISTOR KRC103SRTK	TNAAC05002
Q8009	COMPOUND TRANSISTOR KRC103SRTK	TNAAC05002
Q8010	COMPOUND TRANSISTOR KRA101SRTK	TPAAA05001
Q8011	TRANSISTOR ,SILICON KTC3875SYRTK	TCAA3875SY
Q8012	TRANSISTOR ,SILICON KTA1504SYRTK	TAAA1504SY
Q8013	TRANSISTOR ,SILICON KTC3875SYRTK	TCAA3875SY
Q8014	COMPOUND TRANSISTOR KRC103SRTK	TNAAC05002
Q8015	COMPOUND TRANSISTOR KRC103SRTK	TNAAC05002
Q8016	COMPOUND TRANSISTOR KRC103SRTK	TNAAC05002
Q8017	COMPOUND TRANSISTOR KRC103SRTK	TNAAC05002

Mark No.	Description	Part No.
Q8018	COMPOUND TRANSISTOR KRC103SRTK	TNAAC05002
Q8019	TRANSISTOR ,SILICON KTC3875SYRTK	TCAA3875SY
Q8020	TRANSISTOR ,SILICON KTC3875SYRTK	TCAA3875SY
Q8021	TRANSISTOR ,SILICON KTC3875SYRTK	TCAA3875SY
Q8022	COMPOUND TRANSISTOR KRC103SRTK	TNAAC05002
Q8023	COMPOUND TRANSISTOR KRA103SRTK	TPAAC05002
Q8024	COMPOUND TRANSISTOR KRC103SRTK	TNAAC05002
Q8025	COMPOUND TRANSISTOR KRA103SRTK	TPAAC05002
Q8026	COMPOUND TRANSISTOR KRA103SRTK	TPAAC05002
Q8027	COMPOUND TRANSISTOR KRA101SRTK	TPAAA05001
Q8028	COMPOUND TRANSISTOR KRC103SRTK	TNAAC05002
Q8029	COMPOUND TRANSISTOR KRA103SRTK	TPAAC05002
Q8030	COMPOUND TRANSISTOR KRA103SRTK	TPAAC05002
Q8031	COMPOUND TRANSISTOR KRA103SRTK	TPAAC05002
Q8032	TRANSISTOR ,SILICON KTC3875S_Y_RTK	TCAA3875SY
Q8033	COMPOUND TRANSISTOR KRA103SRTK	TPAAC05002
Q8034	COMPOUND TRANSISTOR KRC103SRTK	TNAAC05002
Q8035	COMPOUND TRANSISTOR KRA103SRTK	TPAAC05002
Q8301	FET 2SK3018T106	T27T030180
Q8302	FET 2SK3018T106	T27T030180
Q8303	TRANSISTOR,SILICON KTC3875S_Y_RTK	TCAA3875SY
Q8304	FET 2SK3018T106	T27T030180
Q8305	TRANSISTOR,SILICON KTC3875S_Y_RTK	TCAA3875SY
Q8306	FET 2SK3018T106	T27T030180
Q8307	FET 2SK3018T106	T27T030180
D101	DIODE,SILICON 1SS133T-77	D1VT001330
D601	LED LTL-1CHGE-002A	0021E5Q210
D602	LED LTL-1CHAE-002A	0021E3Q030
D701	DIODE,SILICON 1SS133T-77	D1VT001330
D1703	DIODE,ZENER MTZJ10B T-77	D97U01001B
D1704	DIODE,SILICON 1SS355 TE-17	DD7R0S3550
D1705	DIODE,SILICON 1SS355 TE-17	DD7R0S3550
D3001	INFRARED LED LTE-3271T-012A-O	0010E00330
D3002	DIODE,SILICON 1SS133T-77	D1VT001330
D3003	DIODE,SILICON 1SS133T-77	D1VT001330
D8002	DIODE,SILICON 1SS133T-77	D1VT001330
D8003	DIODE,SILICON 1SS133T-77	D1VT001330
D8004	DIODE,SILICON 1SS133T-77	D1VT001330
D8005	DIODE,SILICON 1SS133T-77	D1VT001330
D8006	DIODE,SCHOTTKY 11EQS04N-TA1B2	D28TQS04N0

COILS

L101	COIL,BIAS OSC 1626010	031626010R
L102	COIL 100 UH	02167F101J
L104	COIL 22 UH	02167F220J
L105	COIL 22 UH	02167F220J
L106	COIL 22 UH	02167F220J
L107	COIL 22 UH	02167F220J
L109	COIL 22 UH	02167F220J
L301	COIL 22 UH	02167F220J
L701	COIL 22 UH	021LA6220J
L703	COIL 22 UH	02167F220J
L704	COIL 22 UH	021LA6220J
L705	COIL 22 UH	02167F220J
L706	COIL 22 UH	02167F220J
L801	COIL 100 UH	02167F101J
L1701	COIL 10 UH	02167E100K
L1702	COIL 47 UH	02167F470J
L3001	COIL 12 UH	021LA6120J
L7301	COIL 1 UH	0216SD1R0J
L7302	COIL 1 UH	0216SD1R0J
L7303	COIL 1 UH	0216SD1R0J
L7304	COIL 1 UH	0216SD1R0J
L7305	COIL 1 UH	0216SD1R0J
L7306	COIL 1 UH	0216SD1R0J
L7307	COIL 6.8 UH	0216SD6R8J
L7308	COIL 6.8 UH	0216SD6R8J
L7309	COIL 6.8 UH	0216SD6R8J
L8001	COIL 22 UH	02167F220J
L8002	COIL 100 UH	02167F101J
L8003	COIL 100 UH	021LA6101J
L8303	COIL 22 UH	02167F220J
L8307	COIL 100 UH	02167F101J

SWITCHES

SW601	SWITCH TACT EVQ11L05R	0504R01T38
SW602	SWITCH TACT EVQ11L05R	0504R01T38
SW603	SWITCH TACT EVQ11L05R	0504R01T38
SW604	SWITCH TACT EVQ11L05R	0504R01T38
SW605	SWITCH TACT EVQ11L05R	0504R01T38
SW606	SWITCH TACT EVQ11L05R	0504R01T38
SW607	SWITCH TACT EVQ11L05R	0504R01T38
SW608	SWITCH TACT EVQ11L05R	0504R01T38
SW609	SWITCH TACT EVQ11L05R	0504R01T38
SW610	SWITCH TACT EVQ11L05R	0504R01T38
SW611	SWITCH TACT EVQ11L05R	0504R01T38
SW612	SWITCH TACT EVQ11L05R	0504R01T38
SW3001	SWITCH (LEAF) LSA-1144EAU	0508S11001

RESISTORS

⚠R531	R,FUSE 22 OHM 1/4W	R65584220J
⚠R533	R,FUSE 2.7 OHM 1/4W	R655842R7J
R1706	R,METAL OXIDE 1.5 OHM 3W	R3X28B1R5J
R1734	R,FUSE 2.7 OHM 1/4W	R655842R7J
NR4001	R,NETWORK 4D03WGJ0470T5E	110P4470M4
NR4002	R,NETWORK 4D03WGJ0470T5E	110P4470M4
NR4003	R,NETWORK 4D03WGJ0470T5E	110P4470M4
NR4004	R,NETWORK 4D03WGJ0470T5E	110P4470M4
NR4005	R,NETWORK 4D03WGJ0470T5E	110P4470M4
NR4006	R,NETWORK 4D03WGJ0470T5E	110P4470M4
NR4007	R,NETWORK 4D03WGJ0470T5E	110P4470M4
NR4008	R,NETWORK 4D03WGJ0470T5E	110P4470M4

OTHERS

B660	CORE,BEADS MMZ1608R102CT	0246C51024
B661	CORE,BEADS MMZ1608R102CT	0246C51024
B662	CORE,BEADS MMZ1608R102CT	0246C51024
B4001	CORE,BEADS MMZ1608R102CT	0246C51024
B4002	CORE,BEADS MMZ1608R102CT	0246C51024
B4003	CORE,BEADS MMZ1608R102CT	0246C51024
B4004	CORE,BEADS MMZ1608R102CT	0246C51024
B4005	CORE,BEADS MMZ1608R102CT	0246C51024
B4006	CORE,BEADS MMZ1608R102CT	0246C51024
B4007	CORE,BEADS MMZ1608R102CT	0246C51024
B4008	CORE,BEADS MMZ1608R102CT	0246C51024
B7302	CORE,BEADS MMZ1608R102CT	0246C51024
B7303	CORE,BEADS MMZ1608R102CT	0246C51024
B7304	CORE,BEADS HCB2012K-600T25	024HC36001
B7305	CORE,BEADS HCB2012K-600T25	024HC36001
B7306	CORE,BEADS HCB2012K-600T25	024HC36001
B7307	CORE,BEADS HCB2012K-600T25	024HC36001

Mark	No.	Description	Part No.
	B7308	CORE,BEADS MMZ1608R102CT	0246C51024
	B8001	CORE,BEADS MMZ1608R102CT	0246C51024
	B8002	CORE,BEADS MMZ1608R102CT	0246C51024
	CD102	CORD,JUMPER 2F041508	122F041508
⚠	CD501	CORD,SET AC 9619904	1209619904
	CD502	FLAT CABLE AWM2468 AWG26 16C BLACK 160MM	WPL6016038
	CD504	CORD,CONNECTOR C3641204	06C3641204
	CD603	FLAT CABLE AWM2468 AWG26 5C GRAY 180MM	WCL6818038
	CD604	FLAT CABLE AWM2468 AWG26 BLACK 2C 100MM	W9L6010038
	CD651	CORD,CONNECTOR C3262101	06C3262101
	CP101	CONNECTOR PCB SIDE TOC-C09X-A1	0697290620
	CP102	CONNECTOR PCB SIDE IMSA-9604S-04C	069J740599
	CP103	WIRE HOLDER B2013H02-2P	067U002019
⚠	CP502	WIRE HOLDER B2013H02-16P	067U016019
	CP601	CONNECTOR PCB SIDE A2001WR2-6P	069S260639
	CP602	WIRE HOLDER B2013H02-5P	067U005049
	CP603	WIRE HOLDER B2013H02-5P	067U005049
	CP604	WIRE HOLDER B2013H02-2P	067U002019
	CP605	WIRE HOLDER B2013H02-2P	067U002019
	CP653	CONNECTOR PCB SIDE A2001WR2-6P	069S260639
	CD4001	CORD,JUMPER BH040081	12BH040081
	CD7301	CORD,JUMPER 2H0K1802	122H0K1802
	CD7302	CORD,JUMPER 2H0K1802	122H0K1802
	CD7303	CORD,JUMPER 2H0F1801	122H0F1801
	CD7304	CORD,CONNECTOR C32A2603	06C32A2603
	CP1701	CONNECTOR PCB SIDE A2001WV2-10P	069S2A0629
	CP1702	CONNECTOR PCB SIDE 52147-1610	069R2G0589
⚠	CP3001	CONNECTOR PCB SIDE TMC-J12P-B2	06972C0010
	CP4001	CONNECTOR PCB SIDE 04-6274-040-000-800	06AEY04010
	CP4007	CONNECTOR PCB SIDE A2001WR2-7P	069S270639
	CP7301	CONNECTOR PCB SIDE 04-6232-120-103-800+	069EVKT070
	CP7302	CONNECTOR PCB SIDE 04-6232-120-103-800+	069EVKT070
	CP7303	CONNECTOR PCB SIDE 04-6232-115-103-800+	069EVFT070
	CP7304	CONNECTOR PCB SIDE A2001WV2-10P	069S2A0629
	CP8301	CONNECTOR PCB SIDE IMSA-9615S-20C-PP-A	069JVK0200
	CP8302	CONNECTOR PCB SIDE IMSA-9615S-15C-PP-A	069JVF0200
	CP8303	CONNECTOR PCB SIDE IMSA-9615S-20C-PP-A	069JVK0200
	ICP501	MICRO FUSE 20N_1000FS	0835C01003
	ICP1701	MICRO FUSE 20N_1600FS	0835C01603
	OS651	REMOTE RECEIVER ROM-N340LO	077A034001
	OS8001	OPTICAL DEVICE OFTG038101	07AQ000009
	TU301	RF UNIT 115-V-HA35ARE	0162300044
	V651	TUBE FLUORESCENT DISPLAY HNV-09SS62	096F90R408
	X101	CRYSTAL HC-49/U	100DT3R528
	X3001	CRYSTAL B10000C001	100GT01006
	X3002	CRYSTAL DT-26	100DA32R01
	X3003	CRYSTAL HC-49/U-S	100CT01403
	X4001	CRYSTAL DSO751SV	100DT02712
	105	SHIELD,CASE HEAD AMP	752WSA0230
	J651	RCA JACK MSP-281V31-A	060J421039
	J652	RCA JACK MSP-281V40-B	060J401098
	J653	RCA JACK MSP-281V42-B	060J401099
	J655	JACK MDC-012V1-A_LF	063D700010
	J8001	JACK MDC-070V-A_LF	063D700009
	J8002	RCA JACK MSP-213V2-432_NI_LF	060J431020
	J8003	JACK MDC-070V-B-LF	063D700008
	J8004	RCA JACK MSP-213V1-732_NI_LF	060J411033
	J8005	RCA JACK MSP-213V1-432_NI_LF	060J411031
	J8006	RCA JACK MSP-213V1-652_NI_LF	060J411032

6. ADJUSTMENT

6.1 SERVICE MODE LIST

To enter one of the Sub-Service modes, hold a designated key on the unit pressed for a specified period of time while holding another designated key on the unit or on the remote control unit pressed.

Mode of the Unit	Key on the Unit	Key on the Unit	Specified Period (sec)	Description
VCR	FF	CH+	2	For (1) initial setting of the μ-CON on the VCR side, (2) confirmation of initial settings for the Memory IC, and (3) displaying the accumulated time of playback and recording on the screen.
DVD	PLAY	CH+	2	Initialization to the state at shipment **Note:** Do NOT use this mode during normal servicing. This mode will reset the time setting, channel setting, and the accumulated time of playback/recording.
VCR (Playback)	CH+	CH–	2	For setting tracking to the center value **Note:** You can enter this mode by holding the ATR key on the remote control unit pressed for 2 seconds.
VCR (Playback)	REC	DVD/VCR	2	For automatic adjustment of the PG shifter
DVD	CH–	DVD/VCR	2	For displaying information
VCR	CH–	S-BY/ON	2	For entering Operation-of-Only-VCR-Section mode **Note:** In this mode, you cannot switch to DVD mode even if connection of the DVD section has been made.

The following Sub-Service modes can be entered by first holding the designated key on the remote control unit pressed then pressing another designated key on the unit.

Mode of the Unit	Key on the Remote Control Unit	Key on the Unit	Specified Period (sec)	Description
DVD	0	STOP	2	For setting and unlocking the TRAY Lock. This mode functions cyclically.
DVD (NO DISC)	2	STOP	2	F/W Writing mode
DVD	6	STOP	2	For initial setting of μ-CON on the DVD side
DVD (NO DISC)	7	STOP	2	For canceling Parental Lock **Note:** This mode functions only when a disc is not loaded in DVD mode
DVD (NO DISC)	8	STOP	2	For entering Region-Code Writing mode
DVD (Playback, NO DISC)	9	STOP	2	For displaying Loader Information and error rates

For switching the RF output channels (CH 3/4)
While the unit is off, hold the 3 or 4 key on the remote control unit pressed for at least 3 seconds.

6.2 ADJUSTMENT ITEMS AND NECESSARY ADJUSTMENT POINTS

When	Adjustment Items	
■ Replacing Parts of Mechanism Assy		
Replacing REEL DISK (S REEL, T REEL)	Mechanical point	① ② ③ ④ ⑤
	Electrical point	None
Replacing TENSION BAND TENSION CONNECT TENSION ARM ASSY T BRAKE BAND T BRAKE SPRING T BRAKE ARM IDLLER ASSY CLUTCH ASSY	Mechanical point	② ③ ④ ⑤
	Electrical point	None
Replacing A/C HEAD (AUDIO CONTROL) CYLINDER UNIT ASSY	Mechanical point	⑥ ⑦ ⑧ ⑨
	Electrical point	⑩
■ Replacing PCB Assy or Electrical Parts		
Replacing DECK ASSY VCR MT PCB ASSY	Mechanical point	None
	Electrical point	⑩
Replacing DVD LOADER	Mechanical point	None
	Electrical point	⑪
Replacing IC3099 (VCR SIDE EEPROM)	Mechanical point	None
	Electrical point	⑩ ⑫
Replacing IC4002 (DVD SIDE EEPROM)	Mechanical point	None
	Electrical point	⑬

■ ADJUSTMENT ITEMS

[6.6 Mechanical Adjustment]

① 1-1 CONFIRMATION AND ADJUSTMENT OF REEL DISK HEIGHT (P87)

② 1-2 CONFIRMATION AND ADJUSTMENT OF TENSION POST POSITION (P87)

③ 1-3 CONFIRMATION OF PLAYBACK TORQUE AND BACK TENSION TORQUE DURING PLAYBACK (P87)

④ 1-4 CONFIRMATION OF VSR TORQUE (P88)

⑤ 1-5 CONFIRMATION OF REEL BRAKE TORQUE (P88)

⑥ 2-1 GUIDE ROLLER (P88)

⑦ 2-2 CONFIRMATION AND ADJUSTMENT OF AUDIO/CONTROL HEAD (P89)

⑧ 2-3 TAPE RUNNING ADJUSTMENT (X VALUE ADJUSTMENT) (P89)

⑨ 2-4 CONFIRM HI-FI AUDIO (P89)

[6.7 Electrical Adjustment]

⑩ 6.7.1 PG SHIFTER (P91)

[6.8 When Replacing New DVD Loader]

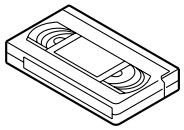
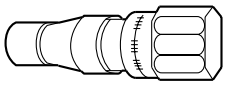
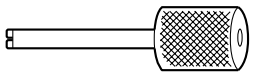
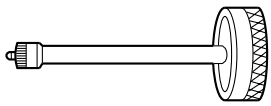
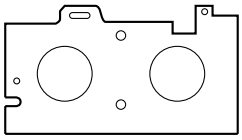
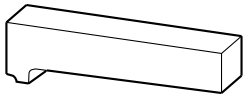
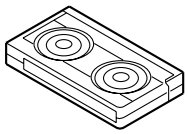
⑪ 6.8 REGION SETTING (P93)

[6.9 When Replacing EEPROM (MEMORY) IC]

⑫ 6.9.1 VCR SIDE EEPROM (IC3099) INITIAL SETTING (P94)

⑬ 6.9.2 DVD SIDE EEPROM (IC4002) INITIAL SETTING (P95)

6.3 SERVICING FIXTURES AND TOOLS

(For 4 heads model) VHS Alignment Tape GGV1183 (VN_1S-$LI6^3H$) GGV1184 (VN_1S-$X6^3$) GGV1185 (VN_2E-$LI6^3H$) 	GGF1506 Adapter GGF1507 Dial Torque Gauge (10~90 gf•cm) GGF1508 (60~600 gf•cm) 	GGF1509 Post Adjustment Screwdriver Part No. SV-TG0-030-000 (small) 	GGF1510 X Value Adjustment Screwdriver 
GGF1511 Master Plane 	GGF1512 Reel Disk Height Adjustment Jig 	GGV1186 Torque Tape (VHT-063) 	

Part No.	Parts Name	Remarks
GGV1183	VHS Alignment Tape (VN_1S-$LI6^3H$)	Hi-Fi Audio **(For 4 heads model)**
GGV1184	VHS Alignment Tape (VN_1S-$X6^3$)	X Value Adjustment **(For 4 heads model)**
GGV1185	VHS Alignment Tape (VN_2E-$LI6^3H$)	EP Monoscope, 6 kHz **(For 4 heads model)**
GGF1506	Adapter	VSR Torque, Brake Torque (S Reel/T Reel Assy)
GGF1507	Dial Torque Gauge (10~90 gf•cm)	Brake Torque (T Reel Assy)
GGF1508	Dial Torque Gauge (60~600 gf•cm)	VSR Torque, Brake Torque (S Reel)
GGF1509	Post Adjustment Screwdriver	Guide Roller Adjustment
GGF1510	X Value Adjustment Screwdriver	X Value Adjustment
GGF1511	Master Plane	Reel Disk Heifht Adjustment
GGF1512	Reel Disk Height Adjustment Jig	Reel Disk Heifht Adjustment
GGV1186	Torque Tape (VHT-063)	Playback Torque, Back Tension Torque During Playback

■ PREPARATION FOR SERVICING

1. While pressing the CH DOWN button on the set for more than 2 seconds, press the POWER button on the set simultaneously at the Power OFF. Although the DVD is connected, the DVD mode cannot be selected.
2. Press both CH UP button on the set and the REC button on the set for more than 2 seconds. (The BOT, EOT, and the Reel Sensor do not work and the VCR deck can be operated without a cassette tape.)
3. In case of using a cassette tape, press the EJECT button to insert or eject a cassette tape. Turn on the power and re-check the cable before checking the trouble points.

When you servicing with connection of DVD, perform the operations above step 2 to step 3.

6.4 CONFIRMATION OF HOURS USED

PLAY/REC total hours can be checked on the screen.
Total hours are displayed in 16 system of notation.

NOTE: If you set a factory initialization, the total hours is reset to "0".

1. Connect the set to TV Monitor.
2. Turn on the POWER, and set to the VCR mode.
3. Press both CH UP button on the set and the FF button on the set for more than 2 seconds.
   The **Fig. 1** screen will appear on TV Monitor.
4. After the confirmation of using hours, turn off the power.

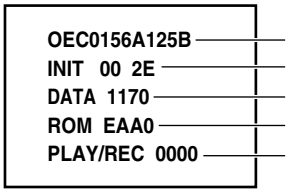


Fig. 1

- MICON Version
- Initial setting content of MEMORY IC.
- Initial setting data check sum.
- Romcorrection data check sum.
- PLAY/REC total hours.
  = (16 × 16 × 16 × thousands digit value)
  + (16 × 16 × hundreds digit value)
  + (16 × tens digit value)
  + (ones digit value)

6.5 PREVENTIVE CHECKS AND SERVICE INTERVALS

The following standard table depends on environmental conditions and usage.
Parts replacing time does not mean the life span for individual parts.
Also, long term storage or misuse may cause transformation and aging of rubber parts.
The following list means standard hours, so the checking hours depends on the conditions.

Time / Parts Name	500 hours	1,000 hours	1,500 hours	2,000 hours	2,500 hours	Notes
Audio Control Head	■	■	■	●	●	Clean those parts in contact with the tape.
Full Erase Head (Recorder only)	■	■	■	●	●	
Capstan Belt		●	●	●	●	Clean the rubber, and parts which the rubber touches
Pinch Roller	■	●	●	●	●	
Capstan DD Unit		●	●	●	●	
Loading Motor					●	
Tension Band		●	●	●	●	
T Brake Band		●	●	●	●	
Clutch Assy		●	●	●	●	
Idler Arm Assy		●	●	●	●	
Capstan Shaft	■	■	■	■	■	
Tape Running Guide Post	■	■	■	■	■	Replace when rolling becomes abnormal.
Cylinder Unit	■	●	●	●	●	Clean the Head

■ : Clean
● : Check it and if necessary, replace it

CLEANING

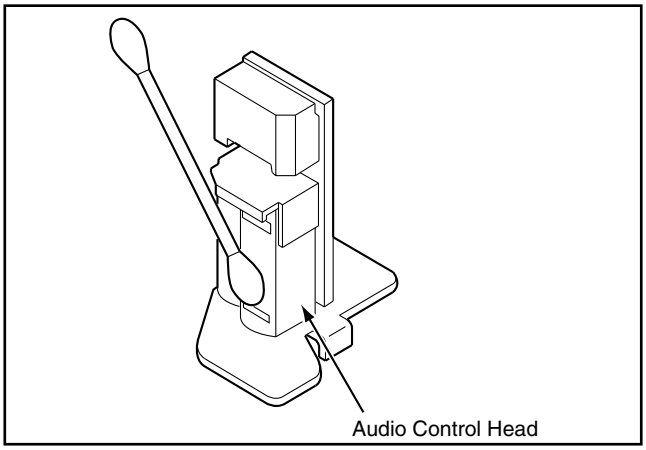
NOTE
After cleaning the heads with isopropyl alcohol, do not run a tape until the heads dry completely. If the heads are not completely dry and alcohol gets on the tape, damage may occur.

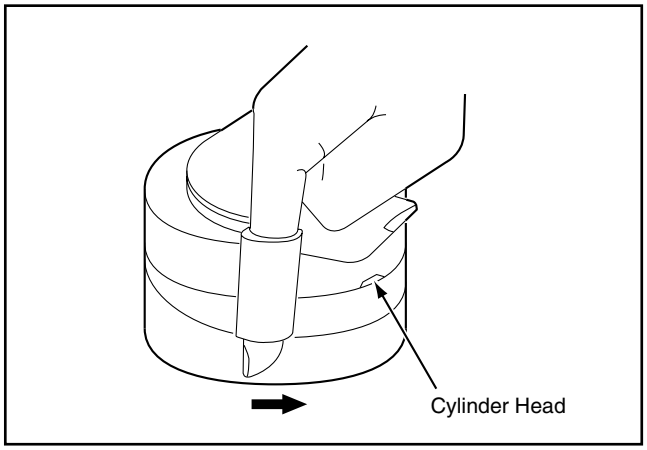
1. AUDIO CONTROL HEAD
Clean the Audio Control Head with the cotton stick soaked by alcohol. Clean the full erase head in the same manner. **(Refer to the figure below.)**

2. TAPE RUNNING SYSTEM
When cleaning the tape transport system, use the gauze moistened with isopropyl alcohol.

3. CYLINDER
Wrap a piece of chamois around your finger. Dip it in isopropyl alcohol. Hold it to the cylinder head softly. Turn the cylinder head counterclockwise to clean it (in the direction of the arrow). **(Refer to the figure below.)**

NOTE
Do not exert force against the cylinder head. Do not move the chamois upward or downward on the head.
Use the chamois one by one.





6.6 MECHANICAL ADJUSTMENTS

1. CONFIRMATION AND ADJUSTMENT

Read the following NOTES before starting work.

- Place an object which weighs between 450g~500g on the Cassette Tape to keep it steady when you want to make the tape run without the Cassette Holder.
  (Do not place an object which weighs over 500g.)

1-1: CONFIRMATION AND ADJUSTMENT OF REEL DISK HEIGHT

1. Turn on the power and set to the STOP mode.
2. Set the master plane (**GGF1511**) and reel disk height adjustment jig (**GGF1512**) on the mechanism framework, taking care not to scratch the drum, as shown in **Fig. 1-1-A**.
3. While turning the reel and confirm the following points. Check if the surface "A" of reel disk is lower than the surface "B" of reel disk height adjustment jig (**GGF1512**) and is higher than the surface "C". If it is not passed, place the height adjustment washers and adjust to 10 (+2, -0) mm.
4. Adjust the other reel in the same way.

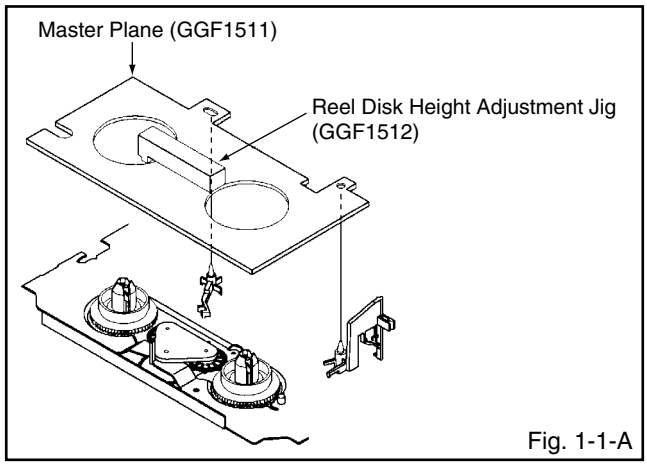


Fig. 1-1-A

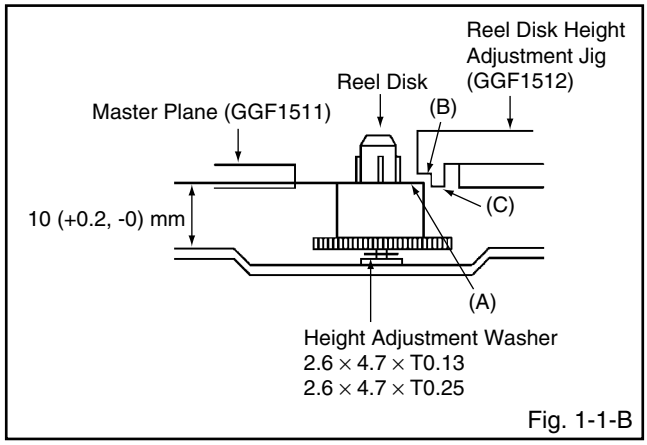


Fig. 1-1-B

1-2: CONFIRMATION AND ADJUSTMENT OF TENSION POST POSITION

1. Set to the PLAY mode.
2. Adjust the adjusting section for the Tension Arm position so that the Tension Arm top is within the standard line of Main Chassis.
3. While turning the S Reel clockwise, confirm that the edge of the Tension Arm is located in the position described above.

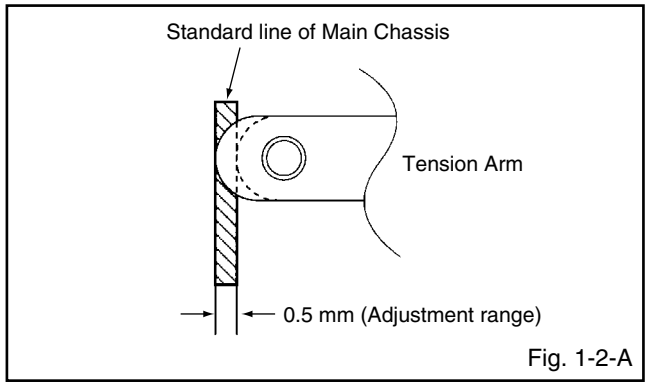


Fig. 1-2-A

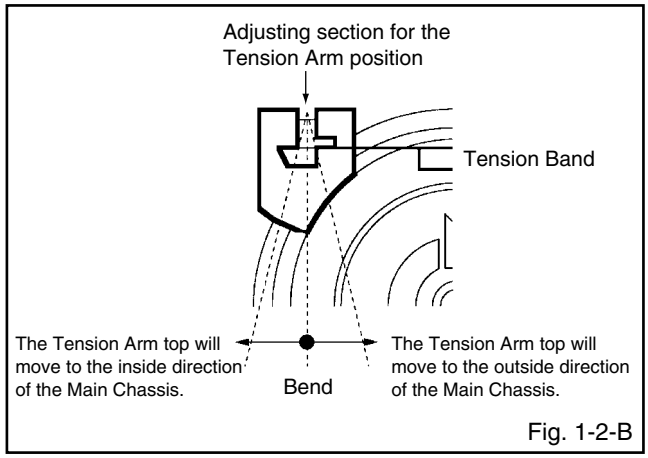

Adjusting section for the Tension Arm position
Tension Band
The Tension Arm top will move to the inside direction of the Main Chassis.
Bend
The Tension Arm top will move to the outside direction of the Main Chassis.

Fig. 1-2-B

1-3: CONFIRMATION OF PLAYBACK TORQUE AND BACK TENSION TORQUE DURING PLAYBACK

• USING A CASSETTE TYPE TORQUE TAPE (**GGV1186**)

1. After confirmation and adjustment of Tension Post position (**Refer to item 1-2**), load the cassette type torque tape (**GGV1186**) and set to the PLAY mode.
2. Confirm that the right meter of the torque tape indicates 50~90gf•cm during playback in SP mode.
3. Confirm that the left meter of the torque tape indicates 25~40gf•cm during playback in SP mode.

1-4: CONFIRMATION OF VSR TORQUE

1. Install the Torque Gauge (**GGF1508**) and Adapter (**GGF1506**) on the S Reel. Set to the Picture Search (Rewind) mode. (**Refer to Fig.1-4-B**)
2. Then, confirm that it indicates 120~180gf•cm.

NOTE

Install the Torque Gauge on the reel disk firmly. Press the REW button to turn the reel disk.

1-5: CONFIRMATION OF REEL BRAKE TORQUE

(S Reel Brake) (**Refer to Fig. 1-4-B**)

1. Once set to the Fast Forward mode then set to the Stop mode. While, unplug the AC cord when the Pinch Roller Block is on the position of **Fig. 1-4-A**.
2. Move the Idler Assy from the S Reel.
3. Install the Torque Gauge (**GGF1508**) and Adapter (**GGF1506**) on the S Reel. Turn the Torque Gauge (**GGF1508**) clockwise.
4. Then, confirm that it indicates 60~100gf•cm.

(T Reel Brake) (**Refer to Fig. 1-4-B**)

1. Once set to the Fast Forward mode then set to the Stop mode. While, unplug the AC cord when the Pinch Roller Block is on the position of **Fig. 1-4-A**.
2. Move the Idler Assy from the T Reel.
3. Install the Torque Gauge (**GGF1507**) and Adapter (**GGF1506**) on the T reel. Turn the Torque Gauge (**GGF1507**) counterclockwise.
4. Then, confirm that it indicates 30~50gf•cm.

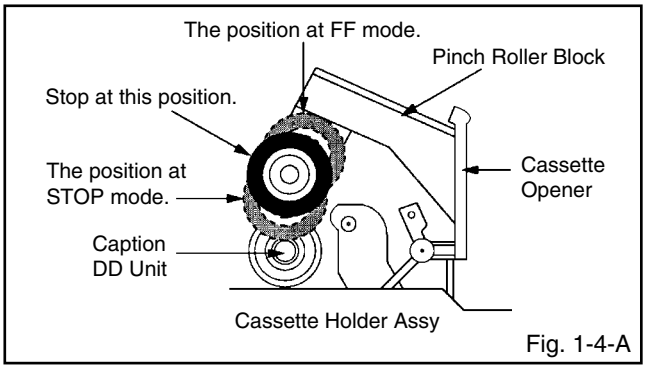


Fig. 1-4-A

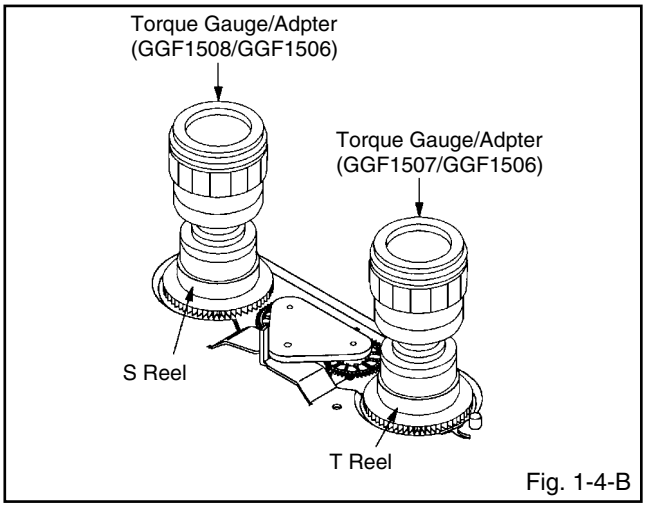


Fig. 1-4-B

NOTE

If the torque is out of the range, replace the following parts.

Check Item	Replacement Part
1-4	Idler Assy / Clutch Assy
1-5	S Reel side : S Reel/ Tension Band/Tension Connect/Tension Arm Assy T Reel side : T Reel/ Brake Band/T Brake Spring /T Brake Arm

2. CONFIRMATION AND ADJUSTMENT OF TAPE RUNNING MECHANISM

Tape Running Mechanism is adjusted precisely at the factory. Adjustment is not necessary as usual. When you replace the parts of the tape running mechanism because of long term usage or failure, the confirmation and adjustment are necessary.

2-1: GUIDE ROLLER

1. Playback the VHS Alignment Tape (**GGV1183**). (**Refer to SERVICING FIXTURE AND TOOLS**)
2. Connect CH-1 of the oscilloscope to **TP101** (**Envelope**) and CH-2 to **TP3002** (**SW Pulse**).
3. Press and hold the ATR button on the remote control more than 2 seconds to set tracking to center.
4. Trigger with SW Pulse and observe the envelope. (**Refer to Fig. 2-1-A**)
5. When observing the envelope, adjust the Adjusting Driver (**GGF1509**) slightly until the envelope will be flat. Even if you press the Tracking Button, adjust so that flatness is not moved so much.
6. Adjust so that the A : B ratio is better than 3 : 2 as shown in **Fig. 2-1-B**, even if you press the Tracking Button to move the envelope (The envelope waveform will begin to decrease when you press the Tracking Button).
7. Adjust the PG shifter during playback. **(Refer to the ELECTRICAL ADJUSTMENTS)**

NOTE

After adjustment, confirm and adjust A/C head. **(Refer to item 2-2)**

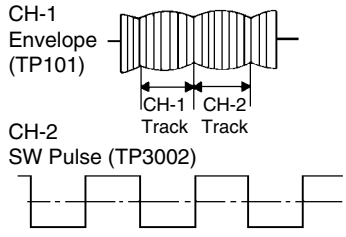


Fig. 2-1-A

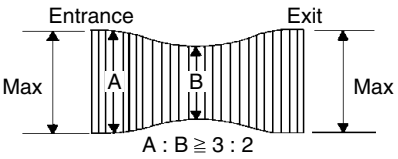


Fig. 2-1-B

2-2: CONFIRMATION AND ADJUSTMENT OF AUDIO/CONTROL HEAD

When the Tape Running Mechanism does not work well, adjust the following items.

1. Playback the VHS Alignment Tape (**GGV1183**). (Refer to SERVICING FIXTURE AND TOOLS)
2. Confirm that the reflected picture of stamp mark is appeared on the tape prior to P4 Post as shown in **Fig. 2-2-A**.
   a) When the reflected picture is distorted, turn the screw ① clockwise until the distortion is disappeared.
   b) When the reflected picture is not distorted, turn the screw ① counterclockwise until little distortion is appeared, then adjust the a).
3. Push the "AUDIO SELECT" button of remote control and select the monaural audio. At this time, "MONAURAL" is displayed on the TV screen at the lower left.
4. Turn the screw ② to set the audio level to maximum.
5. Confirm that the bottom of the Audio/ Control Head and the bottom of the tape is shown in **Fig. 2-2-C**.
   c) When the height is not correct, turn the screw ③ to adjust the height. Then, adjust the 1~3 again.

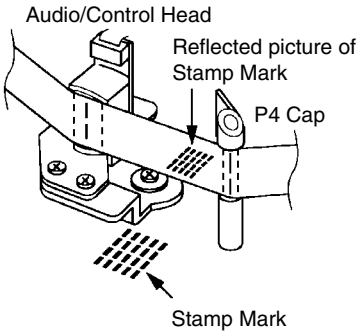


Fig. 2-2-A

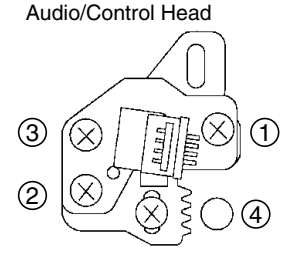


Fig. 2-2-B

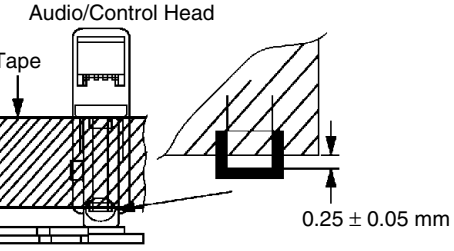


Fig. 2-2-C

2-3: TAPE RUNNING ADJUSTMENT (X VALUE ADJUSTMENT)

1. Confirm and adjust the height of the Reel Disk. (**Refer to item 1-1**)
2. Confirm and adjust the position of the Tension Post. (**Refer to item 1-2**)
3. Adjust the Guide Roller. (**Refer to item 2-1**)
4. Confirm and adjust the Audio/Control Head. (**Refer to item 2-2**)
5. Connect CH-1 of the oscilloscope to **TP3002**, CH-2 to **TP101** and CH-3 to **HOT side of Audio Out Jack**.
6. Playback the VHS Alignment Tape (**GGV1184**). (**Refer to SERVICING FIXTURE AND TOOLS**)
7. Press and hold the ATR button on the remote control more than 2 seconds to set tracking to center.
8. Set the X Value adjustment driver (**GGF1510**) to the ④ of **Fig. 2-2-B**. Adjust X value so that the envelope waveform output becomes maximum. Check if the relation between Audio and Envelope waveform becomes (1) or (2) of **Fig. 2-3**.
9. Playback the VHS Alignment Tape (**GGV1185**). (**Refer to SERVICING FIXTURE AND TOOLS**)
10. Check if the picture is played back correctly.

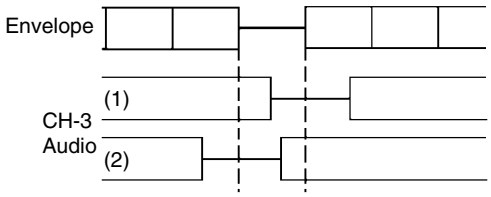
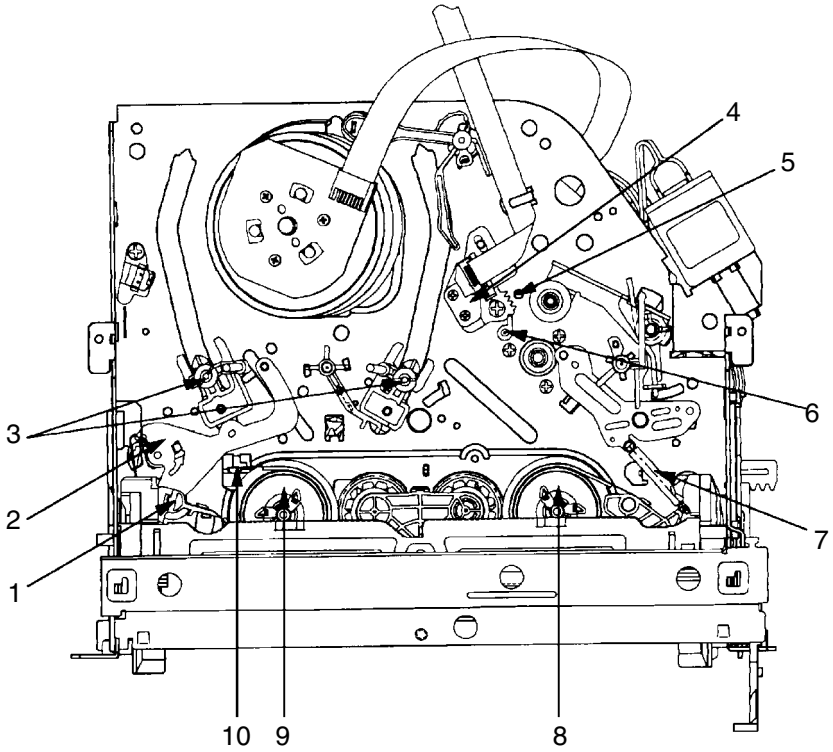


Fig. 2-3

2-4: CONFIRM HI-FI AUDIO (Hi-Fi model only)

1. Connect CH-1 of the oscilloscope to **TP101** and CH-2 to the **Hi-Fi Audio Out Jack**.
2. Playback the VHS Alignment Tape (**GGV1183**). (**Refer to SERVICING FIXTURE AND TOOLS**)
3. Press and hold the ATR button on the remote control more than 2 seconds to set tracking to center.
4. Press the Tracking Up button and count number of steps which the audio output is changed from Hi-Fi (10KHz) to MONO (6KHz).
5. Press and hold the ATR button on the remote control more than 2 seconds to set tracking to center.
6. Press the Tracking Down button and count number of steps which the audio output is changed from Hi-Fi (10KHz) to MONO (6KHz).
7. If the difference are more than 3 steps, set the X Value adjustment driver (**GGF1510**) to ④ of Fig. 2-2-B. Change the X Value and adjust it so that the value becomes within 2 steps.

3. MECHANISM ADJUSTMENT PARTS LOCATION GUIDE



1. Tension Connect
2. Tension Arm
3. Guide Roller
4. Audio/Control Head
5. X value adjustment driver hole
6. P4 Post
7. T Brake Spring
8. T Reel
9. S Reel
10. Adjusting section for the Tension Arm position

6.7 ELECTRICAL ADJUSTMENTS

Read and perform this adjustment when repairing the circuits or replacing electrical parts or PCB assemblies.

6.7.1 PG SHIFTER

CONDITIONS

MODE-PLAYBACK
Input Signal-Alignment Tape (**GGV1183**)

INSTRUCTIONS

1. Connect CH-1 on the oscilloscope to **TP3001** and CH-2 to **J8005**.
2. Playback the alignment tape. (**GGV1183**)
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Press both CH UP button on the set and the STOP button on the set for more than 2 seconds.

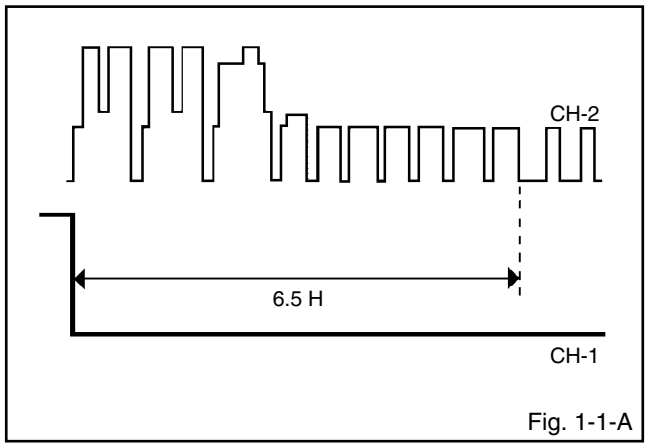


Fig. 1-1-A

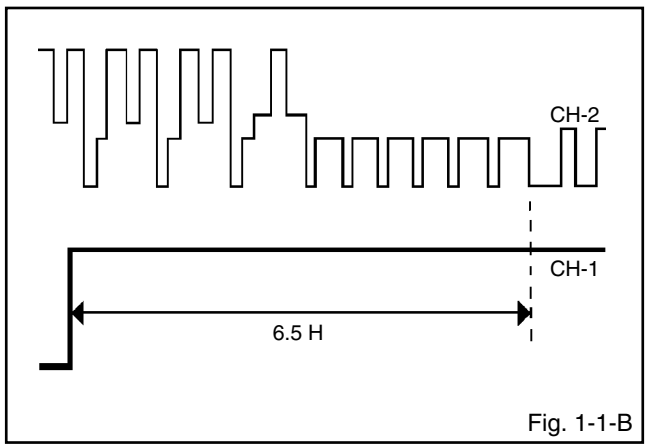
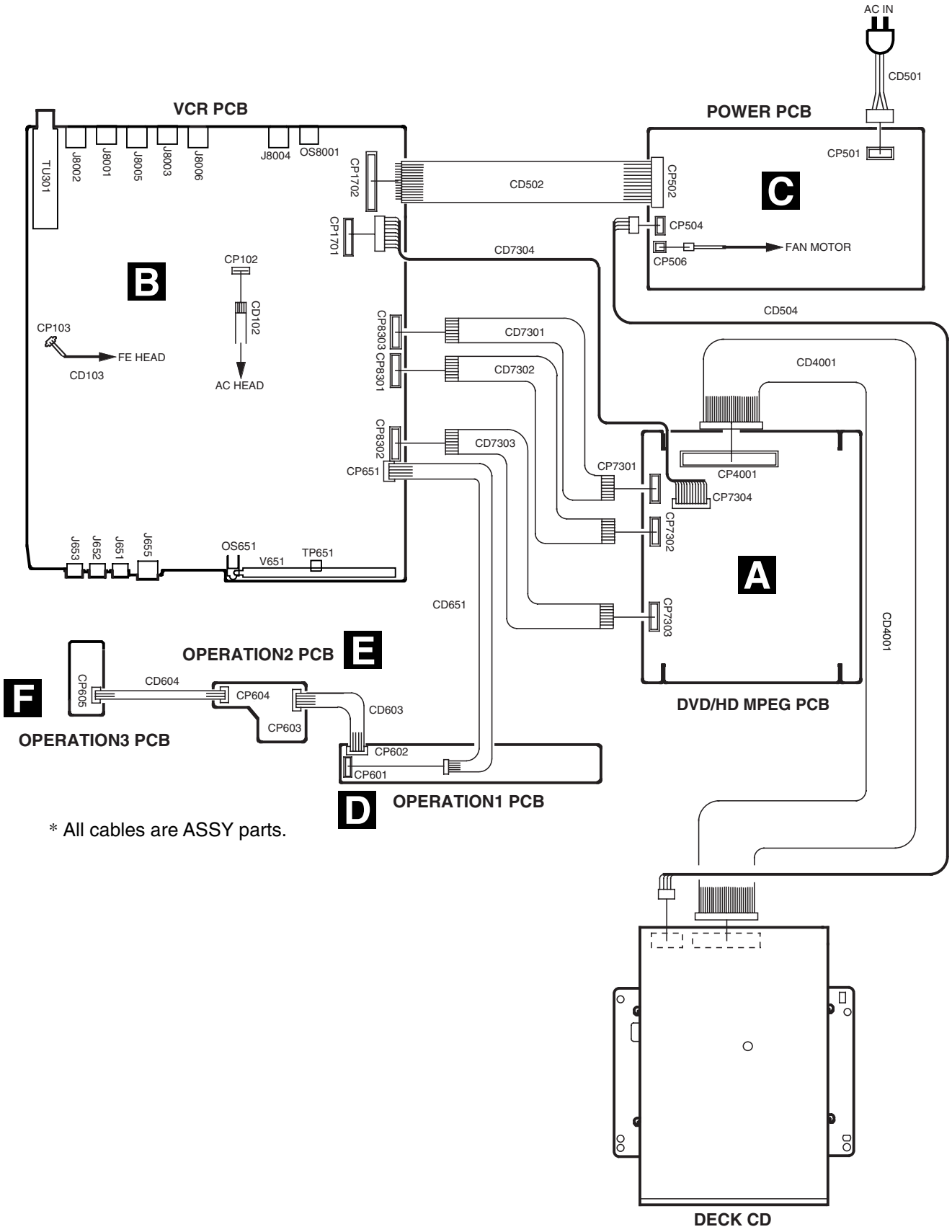


Fig. 1-1-B

2. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (WIRING CONNECTION)



* All cables are ASSY parts.

6.8 WHEN REPLACING NEW DVD LOADER

NOTE:
If a service repair is undertaken where it has been required to change the New DVD Loader, Region setting is needed.
If the Region setting does not performed, only the Region Free disc can be played.
Region setting can only be done once. So, take notice very carefully.

1. Connect the set to TV Monitor.
2. Turn on the POWER, and set to the DVD mode.
3. Press both Channel button (**8**) on the remote control and the STOP button on the set for more than 2 seconds.
   Tray will open.
4. Place your Region setting disc (Region 1) on the tray and close.
   Writing will start.
5. After the writing, the writing Region No. will appear on the TV Monitor.

Perform the initializing of shipping (*)

6. Press both CH UP button on the set and the PLAY button on the set for more than 2 seconds.
7. After the finishing of the initializing of shipping, the unit will turn off automatically.

* : When initializing to shipping data, the VCR operating time record is cleared.

Check for the Region No.

8. Turn on the POWER, and set to the DVD mode.
9. Press both CH DOWN button on the set and the DVD/VCR button on the set for more than 2 seconds.
   Information screen will be displayed on the TV Monitor. (**Refer to Fig. 1**)
10. If the writing Region No. is appeared, the Region setting is completed.
11. Turn off the power.

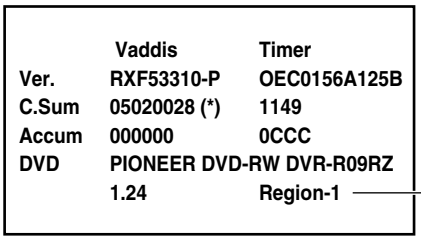


Fig. 1

6.9 WHEN REPLACING EEPROM (MEMORY) IC

If a service repair is undertaken where it has been required to change the MEMORY IC, the following steps should be taken to ensure correct data settings while making reference to TABLE 1 and 2.

NOTE: After the DATA change, if the ENTER button is not pressed at the DATA selection mode and the power is turned off, the DATA change does not performed.
After the DATA change, press the ENTER button by all means and set to the ADDRESS selection mode, then turn off the power.

6.9.1 VCR side EEPROM (IC3099) initial setting

NOTE: No need setting for after INI35

* Do not change other adress data.

INIT	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F
00	2E	4F	83	07	64	64	4A	86	0B	2A	86	35	8A	08	0A	01
10	B2	9A	97	8C	A1	20	31	04	88	A5	9F	3A	00	10	BF	00
20	3A	11	22	70	61	2A	3A	00	0B	00	00	00	9A	B2	00	29
30	41	FF	A7	70	7A	F0	---	---	---	---	---	---	---	---	---	---

Table 1

1. Connect the set to TV Monitor.
2. Turn on the POWER, and set to the **VCR mode**.
3. Press both Channel button **(+)** and the **FF** button (►►) on the set for more than 2 seconds.
   ADDRESS and DATA will appear on TV Monitor as **Fig 1** and the ADDRESS is now selected.

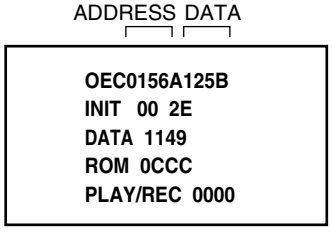


Fig. 1

4. ADDRESS is now selected and should "blink". Using the Tracking + or - button on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
5. Press ENTER to select DATA. When DATA is selected, it will "blink".
6. Again, step through the DATA using Tarcking + or - button until required DATA value has been selected.
7. Pressing ENTER will take you back to ADDRESS for further selection if necessary.
8. Repeat steps 4 to 7 until all data has been checked.
9. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input.

After the data input, set to the initializing of shipping (*).

10. Turn on the POWER, and set to the DVD mode.
11. Press both CH UP button on the set and the PLAY button on the set for more than 2 seconds.
12. After the finishing of the initializing of shipping, the unit will turn off automatically.
    The unit will now have the correct DATA for the new MEMORY IC.

* : When initializing to shipping data, the VCR operating time record is cleared.

6.9.2 DVD side EEPROM (IC4002) initial setting

NOTE: INI 3FF data can not be set.
The datas for the address excepting from 3A0 to 3FF are displayed “ERR”. This unit is not defective.

* Do not change other adress data.

INIT	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F
3A0	01	01	00	01	02	00	00	00	02	07	01	02	01	02	02	02
3B0	02	00	02	02	02	01	00	00	00	00	00	00	00	00	00	00
3C0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
3D0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
3E0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
3F0	00	00	00	00	00	00	00	00	00	00	00	00	00	05	02*	---

* RT501=02
RT401=03

Table 2

1. Connect the set to TV Monitor.
2. Turn on the POWER, and set to the **DVD mode**.
3. Press both Channel button **(6)** on the remote control and the **STOP button** on the set for more than 2 seconds.
   ADDRESS and DATA will appear on TV Monitor as **Fig 2** and the ADDRESS is now selected.

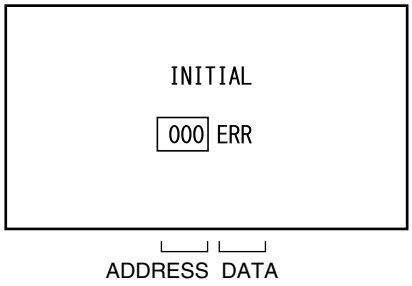


Fig. 2

4. Input the ADDRESS by using Channel +/- button or the following buttons below.
   Numbers are 10 keys from 0 to 9, Alphabets are
   A: VCR EJECT, B: DVD OPEN/CLOSE, C: DVD/VCR, D: TIMER REC, E: INPUT SELECT, F: DISPLAY.
5. Press ENTER to select DATA.
6. Again, step through the DATA using Channel + or - button until required DATA value has been selected.
7. Pressing ENTER will take you back to ADDRESS for further selection if necessary.
8. Repeat steps 4 to 7 until all data has been checked.
9. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input.

After the data input, set to the initializing of shipping (*).

10. Turn on the POWER, and set to the DVD mode.
11. Press both CH UP button on the set and the PLAY button on the set for more than 2 seconds.
12. After the finishing of the initializing of shipping, the unit will turn off automatically.
    The unit will now have the correct DATA for the new MEMORY IC.

* : When initializing to shipping data, the VCR operating time record is cleared.

7. GENERAL INFORMATION

7.1 RE-WRITE FOR DVD FIRMWARE

1. Connect the set to TV Monitor.
2. Turn on the POWER, and set to the **DVD mode**.
3. Confirm that the “No Disc” will be appeared on the screen.
   A disc is already inserted, eject the disc and power it off and on again.
4. Press both Channel button **(2)** on the remote control and the **STOP** button on the set for more than 2 seconds.
5. The tray will open automatically.
6. Press OPEN/CLOSE button on the set to check if all the keys on the unit do not function.
   NOTE: To check if DVD Write mode is set.
7. Place the Up-Date Disc and close the tray by hand. (Refer to SERVICING FIXTURE AND TOOLS)
8. Automatic read will start and "SDRAM writing" will be displayed on the screen.
9. Approx. 7 seconds later, the tray will open automatically. Remove the Up-Date Disc.
   The display will change to “FLASH writing”.
10. Then, Approx. 2 minutes 30 seconds later, the above indication will disappear and the tray will close automatically.
    When the "Please Reboot" appears on the screen, the writing will be finished.
    NOTE: Do not turn off the unit on the way or push the tray by hand to close it.
    Up-Date error will happen and can not be done with the Up-Date of Up-Date Disc.
11. Unplug the AC cord, then plug it in.

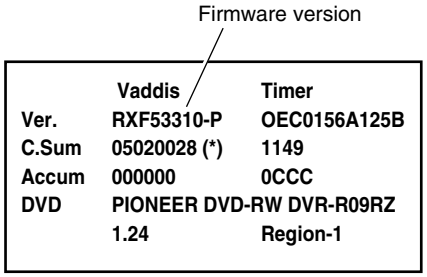
After the write, set to the initializing of shipping (*).

12. Turn on the POWER, and set to the DVD mode.
13. Press both CH UP button on the set and the PLAY button on the set for more than 2 seconds.
14. After the finishing of the initializing of shipping, the unit will turn off automatically.

* : When initializing to shipping data, the VCR operating time record is cleared.

CHECK FOR THE FIRMWARE VERSION

15. Turn on the POWER, and set to the DVD mode.
16. Press both CH DOWN button on the set and the DVD/VCR button on the set for more than 2 seconds.
    Information screen will be displayed on the TV Monitor. **(Refer to Fig. 1)**
17. When the changed version displays, the Re-write will be completed.
18. Turn off the power



(*) : 05030024 for RT401

Fig. 1

7.2 MEASUREMENT OF ERROR RATE

[Measurement Steps]

1) Load the disc that you want to measure the error rate of.

2) During playback, press "9" on the remote control and "STOP" on the main unit at the same time to measure the error rate for that part of the disc.

3) After the error rate has been measures, it is displayed on the screen. (This display is not updated.)

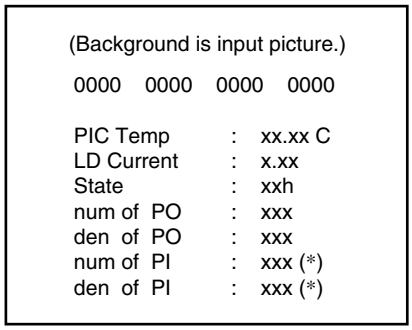

(Background is input picture.)
0000 0000 0000 0000
PIC Temp : xx.xx C
LD Current : x.xx
State : xxh
num of PO : xxx
den of PO : xxx
num of PI : xxx (*)
den of PI : xxx (*)
Error rate value =
num of PI / den of PI
(*) : decimal digit

Fig. 1

4) To clear the error rate display from the screen, press "9" on the remote control and "STOP" on the main unit at the same time again.
When clearing this display, the error rate measurement is not executed.

Table 1: List of Reference Value

Disc Type	Recording Mode	Reference Value
DVD-VIDEO		8.0×10^{-4}
DVD-R	Video mode	1.0×10^{-3}
DVD-RW	Video mode	1.0×10^{-3}

● List of error/warning indications

: With error/warning message
: With messages/indications other than error/warning messages
: No message

Category	Code to be issued (on source code)	Conditions	Processes	Message English For the U.S.A.	Timing of display	Remarks
General	C000	When any input that is prohibited in the current situation is entered	Key input ignored	(No message)	-	If this error is generated while another error/warning message is displayed, the displayed message will not be disturbed.
Power	C002	When the power is shut down without the termination process, such as in cases of power outage or disconnection of the AC power cord (abnormal termination), a warning will be displayed when the unit is restarted the next time.		SYSTEM ERROR PLEASE WAIT	During initialization	
	C003	When the unit is shut down before all data have been written on the disc, a warning will be displayed when the unit is restarted the next time, and the disc-recovery process will be executed.	Disc recovery process executed	SYSTEM ERROR PLEASE WAIT DISK CHEKING	While initialization and disc-recovery processes are in progress	
	C004	When disc recovery succeeds, a message will be displayed after the recovery process is completed	Key input ignored	SYSTEM ERROR DISC MIGHT BE FAILED PRESS ENTER	Immediately after disc recovery is completed until an input from the Enter key. During this period, any other key input is ignored.	
	C005	When disc recovery does not succeed, the message will be displayed after the recovery process has completed.	Key input ignored	SYSTEM ERROR DISC MIGHT BE FAILED PRESS ENTER	Immediately after disc recovery is completed until an input from the Enter key. During this period, any other key input is ignored.	Operations are the same as when disc recovery succeeds. Only the error code is different.
PLAY	C101	When the Play key is pressed while no disc is loaded	Key input ignored	NO DISC	5 sec	The message is displayed at the upper right of the screen. If this error is generated while another error/warning message is displayed, the displayed message will not be disturbed.
	C102	When any key input prohibited during Navi mode is entered	Key input prohibited	Prohibit Mark	5 sec	The message is displayed at the upper right of the screen. If this error is generated while another error/warning message is displayed, the displayed message will not be disturbed.
	C103	When a disc with an inappropriate region code has been loaded	Playback prohibited The error message is displayed after reading or when the Play key is pressed.	REGION CODE ERROR	5 sec	
	C104	When the loaded disc cannot be recognized for some reason, such as a flaw or dirt	Playback prohibited Disc-recognition error	INCORRECT DISC - C104	5 sec	
	C105	When playback cannot be performed because of inappropriate media (DVD-RAM, VCD, etc.)	Playback prohibited Playback may be prohibited, depending on the application software used for the data on the medium	INCORRECT DISC - C105	5 sec	
	C106	When the CPRM data on the disc are inappropriate	Playback prohibited Playback may be prohibited, depending on the application software used for the data on the medium	INCORRECT DISC - C106	5 sec	
	C107	When playback cannot be performed or is interrupted for some reason, such as a flaw, dirt, or inappropriate data	Playback stopped Playback error	INCORRECT DISC - C107	5 sec	
	C108	When MP3/WMA data that do not support streaming are played back	No display on the browser screen	-		

Category	Code to be issued (on source code)	Conditions	Processes	Message English For the U.S.A.	Timing of display	Remarks
Play	C109	When a parent-process error occurred		PARENTAL ERROR - C109	5 sec	
	C110-1	When 180 seconds has elapsed after disc reading begins	Disc-recovery process	DISC CHECKING PLEASE WAIT ABOUT 15 MINUTES		
	C110-2	When 180 seconds has elapsed after disc reading begins	Disc-recovery process	DISC CHECKING PLEASE WAIT ABOUT 10 MINUTES		
	C110-3	When 180 seconds has elapsed after disc reading begins	Disc-recovery process	DISC CHECKING PLEASE WAIT ABOUT 5 MINUTES		
Rec	C201	When the REC key is pressed without a disc loaded	Key input ignored	NO DISC	5 sec	The message is displayed at the upper right of the screen. If this error is generated while another error/warning message is displayed, the displayed message will not be disturbed.
	C202	While the process of terminating recording is in progress (while data are being recorded on the disc for the process of terminating recording)	Key input ignored After the termination process has completed, the unit enters Stop mode.	PROCESSING PLEASE WAIT	While data are being written	
	C001	When power-off is requested during recording	Key input ignored After the recording-stop process has completed, a termination process that is the same as in the case of C001 is performed.	PROCESSING PLEASE WAIT	After the termination process begins until the power is turned off	The power will not be shut off until after recording stops.
	C203	When recording on a full disc is requested	Recording prohibited Recording will not start when free space on the disc is XXX(*) bytes or less.	CANNOT RECORD - C203	5 sec	XXX(*) = 512MByte (Video Format) 128MByte (VR Format)
	C204	When the disc becomes full during recording	Recording stopped The recording-stop process starts when free space on the disc becomes YYY(*) bytes or less. The media info is also changed to "Recording impossible."	RECORDING INTERRUPTED - C204	15 sec	YYY(*) = 512MByte (Video Format) 128MByte (VR Format)
	C205	An error occurred during recording for some reason (incl. a flaw or dirt on the disc)	Recording stopped	DISC ERROR - C205	15 sec	
	C206	When recording is attempted on a medium that does not support recording	Recording prohibited	CANNOT RECORD - C206	5 sec	
	C207	When recording is attempted on a write-protected disc	Recording prohibited	CANNOT RECORD, DISC PROTECTED	5 sec	
	C208	When recording is attempted on a finalized DVD-RW (video format)	Recording prohibited	CANNOT RECORD - C208	5 sec	
	C209	When additional recording is attempted on a disc that has undergone recording on another recorder		CANNOT RECORD - C209	5 sec	
	C210	When additional recording is attempted on a disc on which PC data have been recorded		CANNOT RECORD - C210	5 sec	
	C211	When recording/editing data cannot be written to a disc for some reason	Recording/editing prohibited until the tray opens.	DISC ERROR - C211	5 sec	
	C212	When the recording-stop process has failed	-	DISC ERROR - C212	5 sec	
	C213	When the recording-pause process has failed	-	DISC ERROR - C213	5 sec	
	C215	When the REC key is pressed but 99 titles have been already recorded on the disc	Recording prohibited	CANNOT RECORD, EXCEEDS LIMITED NUMBER OF TITLES.	5 sec	

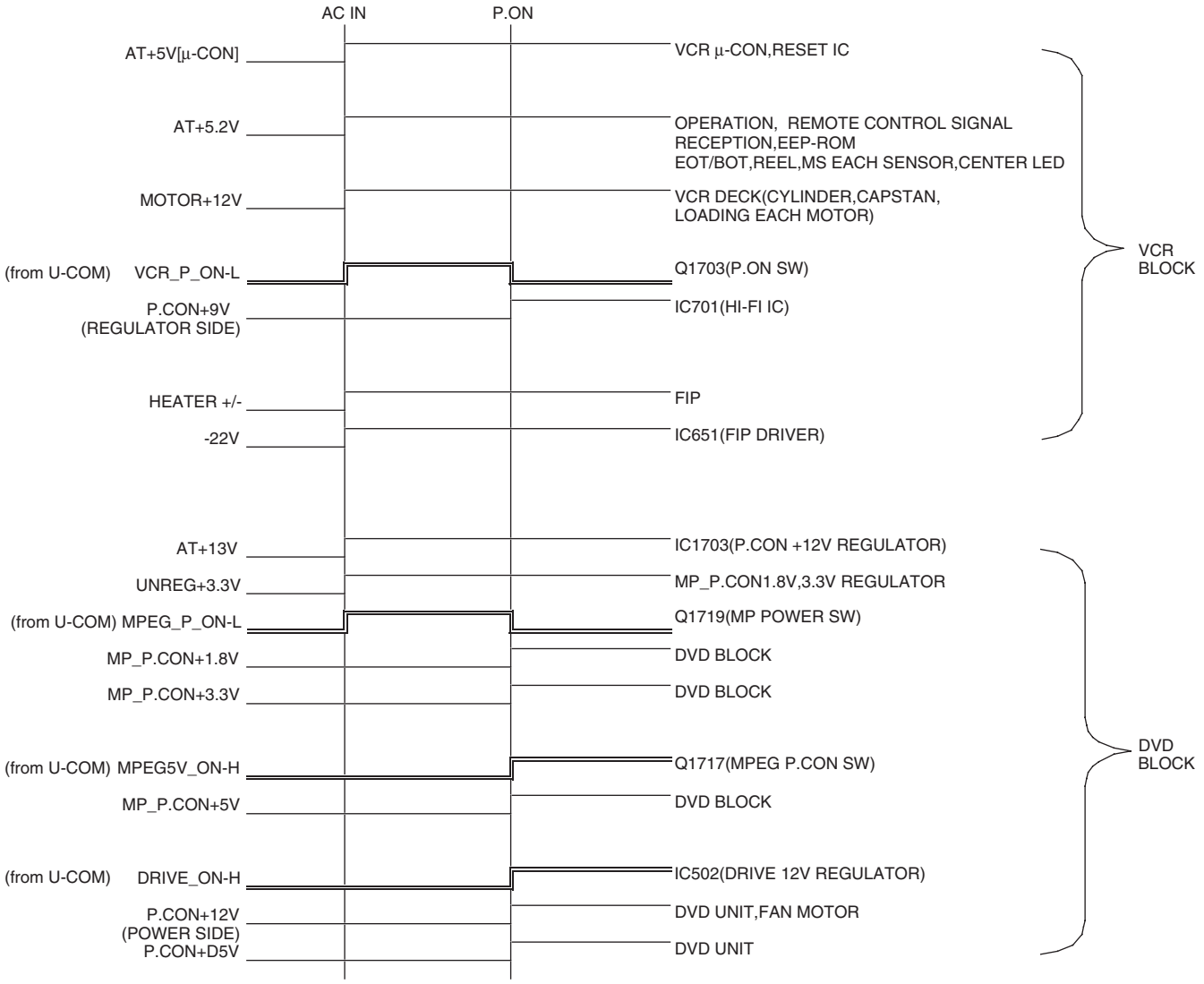
Category	Code to be issued (on source code)	Conditions	Processes	Message English For the U.S.A.	Timing of display	Remarks
Rec	C216	When the REC key is pressed but 999 chapters have been already recorded on the disc	Recording prohibited Recording prohibited, because the maximum number of chapters would be exceeded.	CANNOT RECORD, EXCEEDS LIMITED NUMBER OF CHAPTER.	5 sec	
	C217	When the Auto Chapter function attempts to automatically insert a chapter mark during recording on a disc that already has 999 chapters	Auto Chapter function canceled	-	-	
	C218	When the REC Pause key is pressed during recording on the disc that already has 999 chapters (normally a chapter mark is added each time the REC Pause key is pressed)	REC Pause canceled	-	-	
	C219	When Macrovision copy-protected video signals are to be recorded	Recording prohibited	CANNOT RECORD PROTECTED IMAGE	15 sec	
	C219	When video signals that are copy-protected by CGMS are to be recorded	Recording prohibited	CANNOT RECORD PROTECTED IMAGE	15 sec	
	C220	When video signals being recorded are changed to Macrovision copy-protected signals	Recording stopped	RECORDING INTERRUPTED. PROTECTED IMAGE.	15 sec	
	C220	When video signals being recorded are changed to those copy-protected by CGMS	Recording stopped	RECORDING INTERRUPTED. PROTECTED IMAGE.	15 sec	
	C221	When copy-once video data are to be copied to a video-format disc	Recording prohibited	CANNOT RECORD IN VIDEO MODE. COPY IMAGE ONCE ONLY	15 sec	
	C221	When video signals being recorded to a video-format disc are changed to copy-once video data	Recording stopped	CANNOT RECORD IN VIDEO MODE. COPY IMAGE ONCE ONLY	15 sec	
	C222	When copy-once video data are to be recorded on a DVD disc for PCs	Recording prohibited In the case of a DVD-RW for PCs (video format), it is treated as a video-format disc, and the error indication will be displayed	CANNOT RECORD ON DISC. THIS IS NOT CPRM DISC	15 sec	
	C222	When video signals being recorded on a disc for PCs are changed to copy-once video signals	Recording stopped In the case of a DVD-RW for PCs (video format), it is treated as a video-format disc, and the error indication will be displayed	CANNOT RECORD ON DISC. THIS IS NOT CPRM DISC	15 sec	
	-	When the REC key is pressed while Drive Status is set to Play, Setup Menu, or Title Menu	Key input ignored	-	-	
	C223	When the unit has been left in Record Pause mode for an extended period of time (5 minutes or more)	Recording stopped Recording-stop process is performed.	PROCESSING PLEASE WAIT	While data are being written	
	-	When a REC command is received during recording	Key input ignored (Whether or not OTR is performed is not judged by Vaddis)	-	-	This situation is improbable, because a REC-key input during recording is converted into an OTR DISPLAY command by the timer and issued.
	-	When audio signals are switched during recording in video format	Recording continues. (No special processing)	-	-	An AUDIO DISPLAY command is not issued during recording by the Timer microcomputer. If it should be issued, the command will be ignored.
	C224	When T-REC starts on the VCR side during DVD recording	Recording stopped	-	-	

Category	Code to be issued (on source code)	Conditions	Processes	Message English For the U.S.A.	Timing of display	Remarks
Dubbing	C251	When dubbing cannot be started for some reason (no medium, etc.)	Dubbing prohibited	CANNOT COPY DATA - C251	15 sec	
	C252	When dubbing being performed is stopped by key input from the user	Dubbing stopped	COPYING INTERRUPTED	15 sec	
	C253	When dubbing is executed but the output has been set to Progressive	Dubbing executed The output is forcibly switched to the Interlace to execute dubbing. A warning is displayed before confirmation to execute dubbing	SWITCHING TO INTERLACE OUTPUT FOR COPYING	15 sec	
	C254	When a copy-prohibition signal is detected during dubbing from VCR to DVD	Dubbing stopped	CANNOT COPY DATA - C254	15 sec	
	C255	When a copy-prohibition signal is detected during dubbing from DVD to VCR	Dubbing stopped	CANNOT COPY DATA - C255	15 sec	
Setup Menu	C301	When a blank disc is loaded (only for a DVD-RW)	Formatting executed The disc will be initialized according to the Setup Menu settings	Dialog indicating that formatting is in progress is displayed	While formatting is in progress. The unit will	
	C302	When formatting cannot be performed for some reason	Formatting stopped After the error message is displayed, the unit will return to Menu Disc Maintenance mode.	DISC ERROR - C302	5 sec	
	C304	When finalization cannot be performed for some reason	Finalization stopped After the error message is displayed, the unit will return to Menu Disc Maintenance mode.	DISC ERROR - C304	5 sec	
	C306	When finalization cannot be canceled for some reason	Canceling finalization is stopped. After the error message is displayed, the unit will return to Menu Disc Maintenance mode.	DISC ERROR - C306	5 sec	
	C307	When the disc cannot be write-protected for some reason	Write-protection of disc canceled After the error message is displayed, the unit will return to Menu Disc Maintenance mode.	DISC ERROR - C307	5 sec	
	C308	When the disc write-protection cannot be canceled for some reason	Canceling of disc write-protection is stopped. After the error message is displayed, the unit will return to Menu Disc Maintenance mode.	DISC ERROR - C308	5 sec	
	C310	When finalizing of the disc cannot be performed for some reason, and recovery of the disc also fails		DISC ERROR - C310	5 sec	
	C350	When finalization is completed		DISC FINALIZED		
	C351	When unfinalization is completed		(No indication)		
	-	When formatting is attempted on a disc that cannot be formatted (DVD-ROM, CDDA, and VCD)	The corresponding item on the Menu will be grayed to indicate that that item cannot be executed.	-	-	
	-	When a disc containing protected titles is to be formatted	Formatting executed In the formatting confirmation box, a message to notify that formatting will be executed even if protected data are contained on the disc will be displayed.	-	-	
	-	When a write-protected disc is to be formatted	Formatting executed In the formatting confirmation box, a message to notify that formatting will be executed even if the disc is protected will be displayed.	-	-	
	-	When a finalized disc is to be formatted	Formatting executed In the formatting confirmation box, a message to notify that formatting will be executed even if the disc is protected will be displayed.	-	-	
	-	When a finalized disc is to be finalized	The corresponding item on the Menu will be grayed to indicate that that item cannot be executed.	-	-	
	-	When blank disc is to be finalized	The corresponding item on the Menu will be grayed to indicate that that item cannot be executed.	-	-	
	-	When a multisession disc that contains PC data and audio/video data is to be finalized	The corresponding item on the Menu will be grayed to indicate that that item cannot be executed.	-	-	

Category	Code to be issued (on source code)	Conditions	Processes	Message English For the U.S.A.	Timing of display	Remarks
	-	When a disc that has been recorded in video format and finalized is to be unfinalized	When data in video format are contained on the disc, the corresponding item on the Menu will be grayed to indicate that that item cannot be executed.	-	-	
Title Menu	C402	When a chapter mark is to be added in Edit mode even though 999 PL chapters have already been recorded on the disc	Editing canceled The corresponding item on the Menu will be grayed to indicate that that item cannot be executed.	-	-	
	-	When an original title is to be deleted from a disc that contains playlists	A warning is always displayed when deleting is attempted.	ARE YOU SURE YOU WANT TO DELETE THIS TITLE? IF PLAYLISTS EXIST, THEY WILL BE DELETED. YES NO	A warning is always displayed in the confirmation box.	
	-	When an original title is to be edited on a disc that contains playlists	A warning is always displayed when editing is attempted.	ARE YOU SURE YOU WANT TO EDIT THIS TITLE? IF PLAYLISTS EXIST, THEY WILL BE DELETED. YES NO	A warning is always displayed in the confirmation box.	
	C403	When editing results cannot be written to the disc, or editing cannot be executed for some reason	After the error message is displayed, the screen will return to the Title Menu.	CANNOT EDIT	5 sec	
	C405	When a time-consuming process is performed during editing, etc.	Process in progress	PROCESSING PLEASE WAIT	Until the process is completed	
	-	When a protected title is to be deleted	The corresponding item on the Menu will be grayed to indicate that that item cannot be executed.	-	-	
	-	When a title is to be deleted from a write-protected disc	The corresponding item on the Menu will be grayed to indicate that that item cannot be executed.	-	-	
	-	When a number of characters exceeding 64 is to be entered for a disc/title name	Key input ignored No warning, because no more characters can be input (key input ignored)	-	-	
	-	When a disc/title name is to be determined but no string of characters has been input	When a disc/title name is determined without a character entered, that disc/title is automatically named "TITLE." (Current specification)	-	-	
	C407	When editing in progress is attempted to be interrupted with input of the RETURN key	A confirmation message for whether the user wants to save editing results or not will be displayed, and the unit will wait for user key input. (Current specification)	DO YOU WANT TO SAVE THE CHANGES? YES NO	Until the Enter key is pressed. While the confirmation box is displayed, any key input other than the Enter and cursor keys is ignored.	
Browser	-	When a file other than an MP3, WMA, or JPEG file is selected	Files other than MP3, WMA, and JPEG files will not be displayed.	-	-	
	C501	When a file has a filename extension MP3, WMA, or JPEG, but its data are in non-supported format	Playback is skipped.	-	-	
T-REC	C601	When a G-code is to be entered but the maximum number of T-RECs has been programmed		PROGRAM FULL	5 sec	
	C602	When an entered G-code is erroneous (encoding is impossible)		PlusCode# ERROR	5 sec	
	C603	When two or more timer-recording programs are overlapped	The unit will not accept overlapped timer-recording programs.	-	5 sec	
	C610	When the T-REC key is pressed but no disc/tape is loaded, or when a write-protected disc/tape is loaded		TIMER RECORDING ERROR PLEASE CHECK THE DISC OR TAPE.	5 sec	This code will be added to Pioneer models only.

7.4 POWER ON SEQUENCE

Power on Sequence



7.5 DISC REMOVAL METHOD

1. Insert a fine rod (wire etc.) into the hole of the Front Cabinet as shown by the arrow. **(Refer to Fig. 1)** The Tray is opened.
2. Draw the Tray.

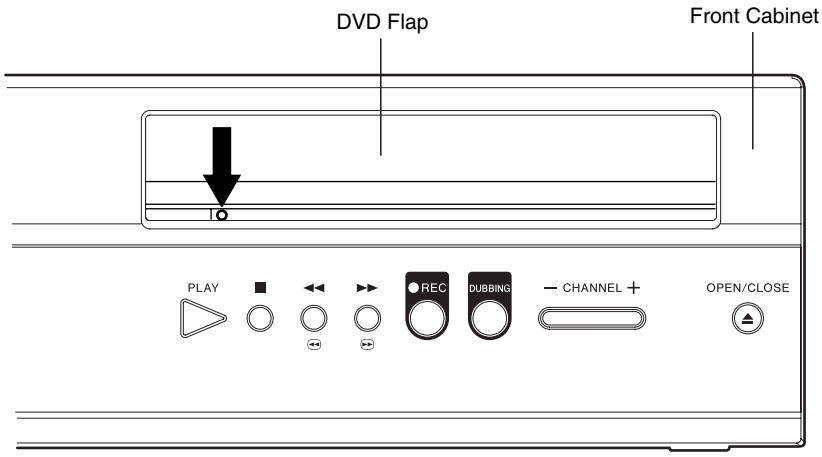


Fig. 1

7.6 TAPE REMOVAL METHOD AT NO POWER SUPPLY

1. Remove the Top Cabinet, Front Cabinet and DVD Block. **(Refer to item 1 of the DISASSEMBLY INSTRUCTIONS.)**
2. Remove one screw of the Loading Motor from the insert hole for screw driver and remove the Loading Motor.
3. Rotate the Pinch Roller Cam in the direction of the arrow by hand to slacken the Video Tape. **(Refer to Fig. 2)**
4. Rotate the Clutch Ass'y either of the derections to wind the Video Tape in the Cassette Case.
5. Repeat the above step 3~4. Then take out the Video Cassette from the Deck Chassis. Be careful not to scratch on the tape.

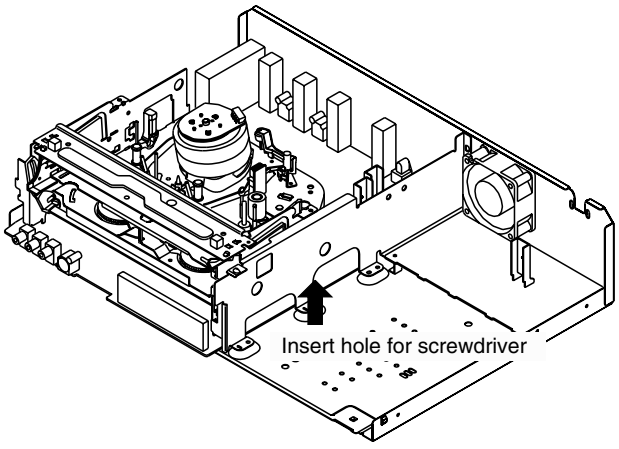


Fig. 1

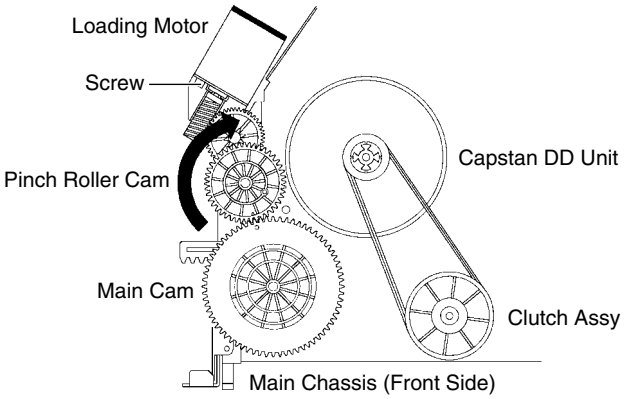


Fig. 2

7.7 PARENTAL CONTROL-RATING LEVEL

4 DIGIT PASSWORD CANCELLATION

If the stored 4 digit password in the Rating Level menu needs to be cancelled, please follow the steps below.

1. Turn Unit ON.
2. Press and hold the '7' key on the remote control unit.
3. Simultaneously press and hold the 'STOP' key on the front panel.
4. Hold both keys for more than 2 seconds.
5. The On Screen Display message 'PASSWORD UNLOCK' will appear.
6. The 4 digit password has now been cleared

NB: No indications on the screen when the Parental Lock is setting.

7.8 TRAY LOCK

Tray cannot be opened by setting the Tray Lock, please follow the steps below.

1. Turn Unit ON.
2. Press and hold the '0' key on the remote control unit.
3. Simultaneously press and hold the 'STOP' key on the front panel.
4. Hold both keys for more than 2 seconds.
5. Press the OPEN/CLOSE key on the front panel to check the Tray Lock setting.

NOTE: No indications on the screen when the Tray Lock is setting.

To unlock the Tray Lock, press follow the steps below.

1. Turn Unit ON.
2. Press and hold the '0' key on the remote control unit.
3. Simultaneously press and hold the 'STOP' key on the front panel.
4. Hold both keys for more than 2 seconds.
5. The Tray Lock has now been cleared.
6. Turn Unit OFF.

NOTE: No indications on the screen when the Tray Lock is setting.

7.9 DISASSEMBLY

1. REMOVAL OF MECHANICAL PARTS AND P.C. BOARDS

1-1: TOP CABINET AND FRONT CABINET (Refer to Fig. 1-1)

1. Remove the 5 screws ①.
2. Remove the Top Cabinet in the direction of arrow (A).
3. Unlock the 8 supports ②.
4. Disconnect the following connector: (CP601).
5. Remove the Front Cabinet in the direction of arrow (B).

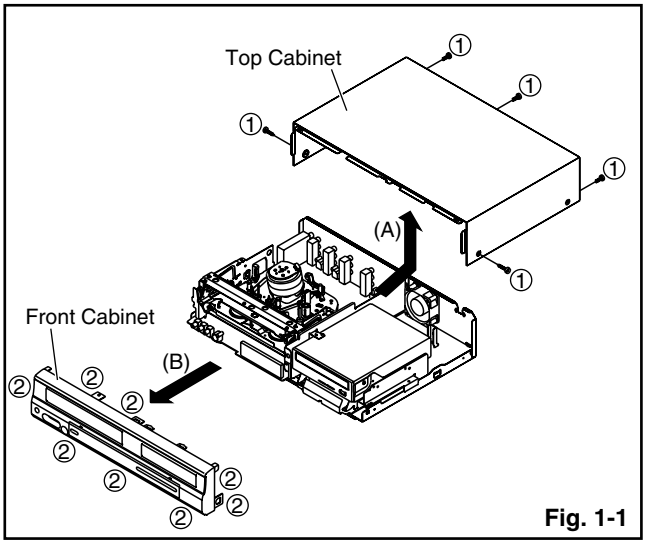


Fig. 1-1

1-2: OPERATION 1/2/3 PCB (Refer to Fig. 1-2)

1. Remove the 2 screws ①.
2. Remove the Deck Holder and Operation 3 PCB in the direction of arrow (A).
3. Remove the 2 screws ②.
4. Remove the Operation 2 PCB and in the direction of arrow (B).
5. Remove the 3 screws ③.
5. Remove the Operation 1 PCB and in the direction of arrow (C).

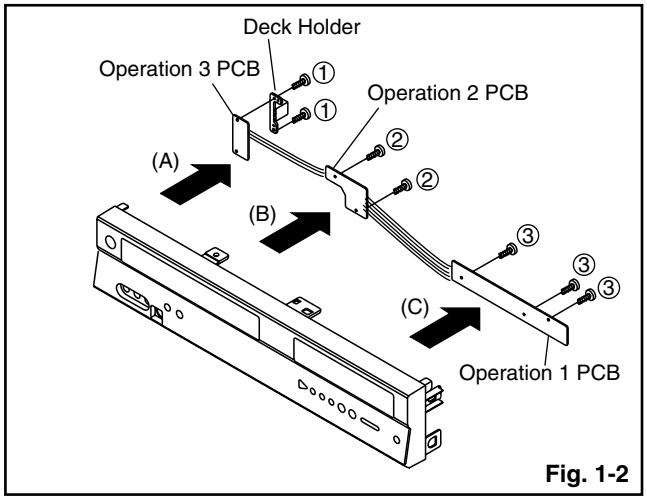


Fig. 1-2

1-3: FLAP (Refer to Fig. 1-3)

1. Open Flap to 90° and flex in direction of arrow (A), at the same time slide in direction of arrow (B).
2. Then lift in direction of arrow (C).

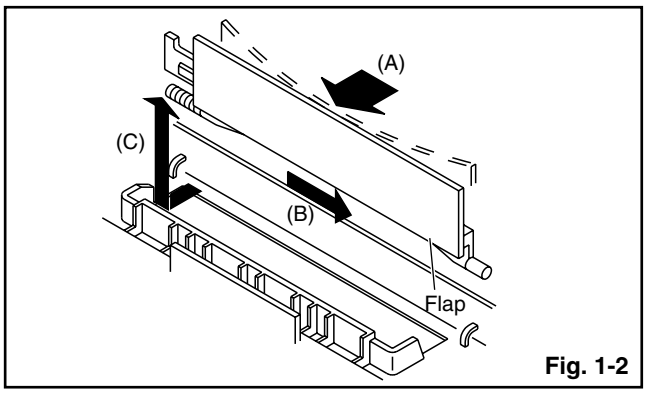


Fig. 1-2

1-4: DECK CD AND DVD/HD MPEG PCB (Refer to Fig. 1-4)

1. Remove the 6 screws ②.
2. Disconnect the connectors CP504 and CP1701. Lift the Deck CD Block in the direction of arrow (B), and disconnect the connectors CP8301, CP8302 and CP8303.
3. Remove the 2 screws ①.
4. Remove the Deck Shield Assy in the direction of arrow (A).
5. Remove the 4 screws ③.
6. Remove the MPEG Shield in the direction of arrow (C).
7. Disconnect the following connector: (CP4001).
8. Remove the DVD/HD MPEG PCB in the direction of arrow (D).
9. Remove the 2 screws ④.
10. Remove the DVD Angle (L) in the direction of arrow (E).
11. Remove the 2 screws ⑤.
12. Remove the Bottom Holder and DVD Angle (R) in the direction of arrow (F).

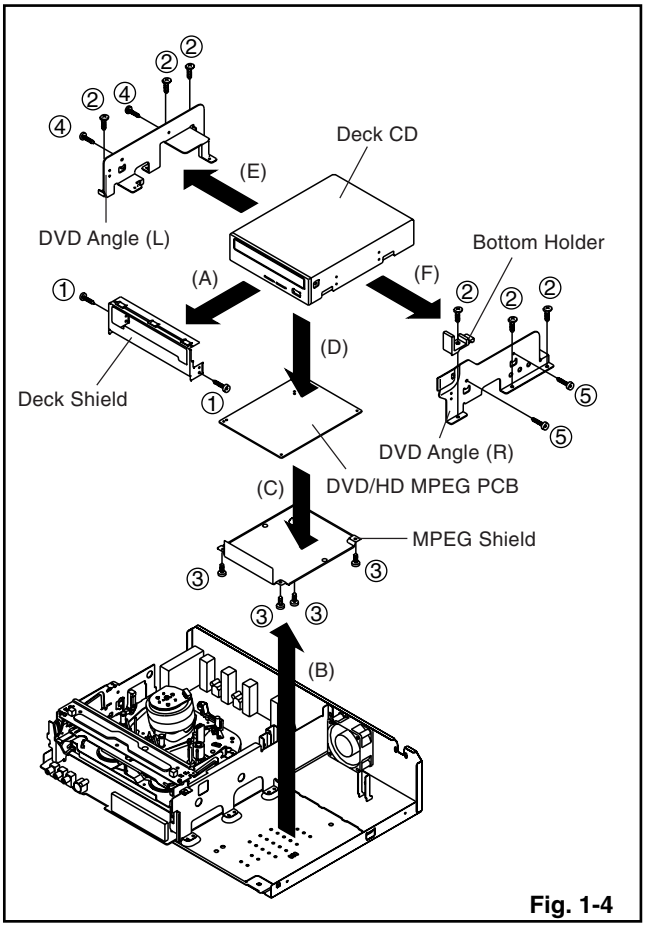


Fig. 1-4

1-4: POWER PCB (Refer to Fig. 1-4)

1. Remove the 2 screws ①.
2. Disconnect the following connector: (CP506).
3. Remove the Fan Motor in the direction of arrow (A).
4. Remove the 3 screws ②.
5. Disconnect the following connector: (CP1702).
6. Remove the Power PCB in the direction of arrow (B).

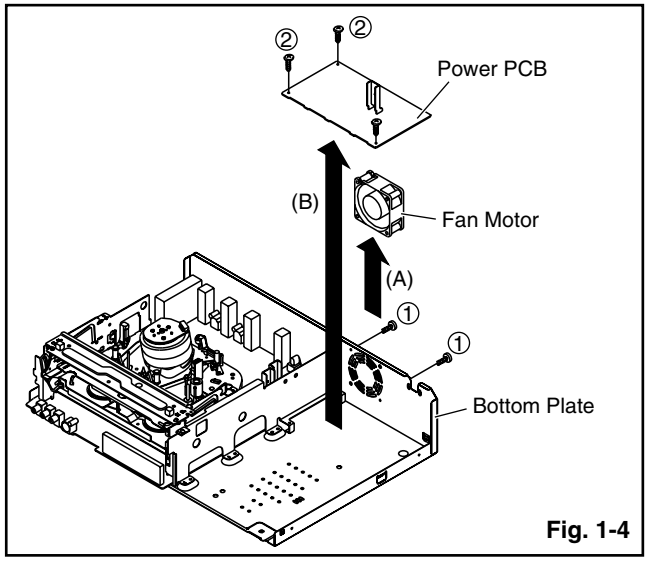


Fig. 1-4

1-6: VCR DECK (Refer to Fig. 1-6)

NOTE:

Do not remove the cable at the FE Head section. The FE Head may be damaged if you remove the cable by force.

1. Unlock the 2 supports ① and remove the Top Holder.
2. Remove the screw ②.
3. Remove the FE Head.
4. Move the Cassette Holder Assy to the back side.
5. Remove the 3 screws ③.
6. Disconnect the following connectors: (CP101, CP102, CP3001).
7. Remove the AC Head Cover and VCR Deck in the direction of arrow.

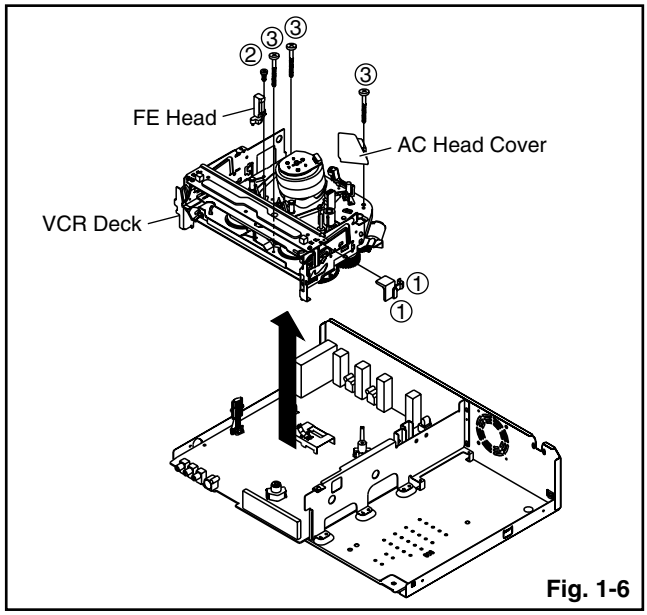


Fig. 1-6

1-7: VCR PCB (Refer to Fig. 1-7)

1. Remove the screw ①.
2. Remove the screw ②.
3. Remove the 7 screws ③.
4. Remove the Jack Shield.
5. Remove the VCR PCB in the direction of arrow.

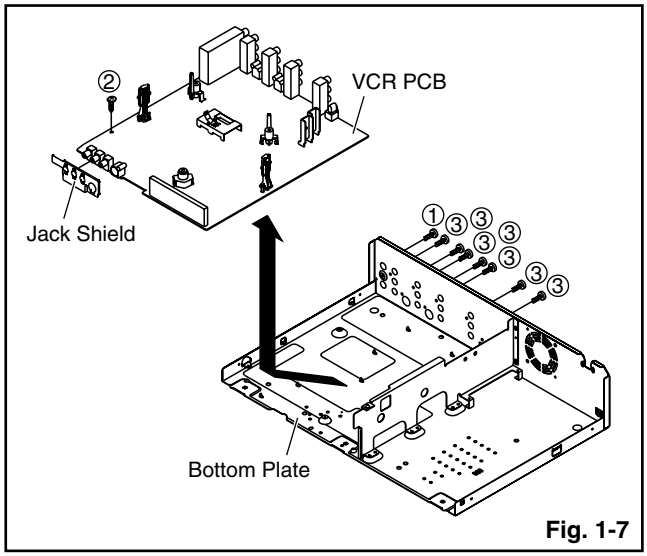


Fig. 1-7

2. REMOVAL OF VCR DECK PARTS

2-1: TOP BRACKET (Refer to Fig. 2-1)

1. Extend the 2 supports ①.
2. Slide the 2 supports ② and remove the Top Bracket.

NOTE

1. After the installation of the Top Bracket, bend the support ① so that the Top Bracket is fixed.

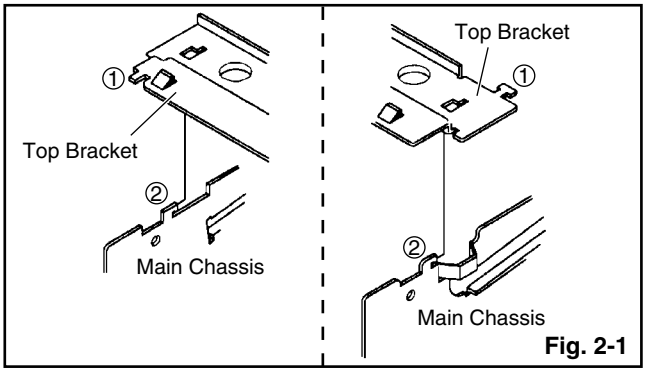


Fig. 2-1

2-2: CASSETTE HOLDER ASSY (Refer to Fig. 2-2)

1. Move the Cassette Holder Assy to the front side.
2. Push the Locker R to remove the Cassette Side R.
3. Remove the Cassette Side L.

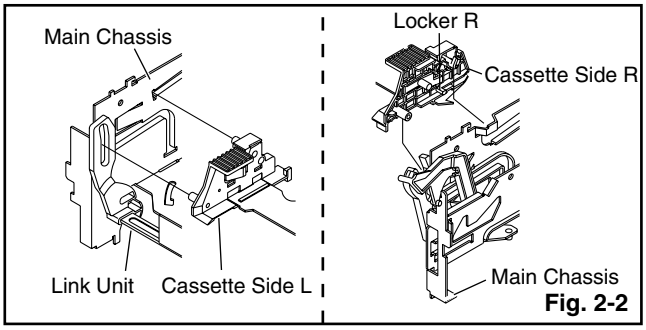


Fig. 2-2

2-3: LINK UNIT (Refer to Fig. 2-3)

1. Set the Link Unit to the Eject position.
2. Unlock the support ①.
3. Remove the (A) side of the Link Unit first, then remove the (B) side.

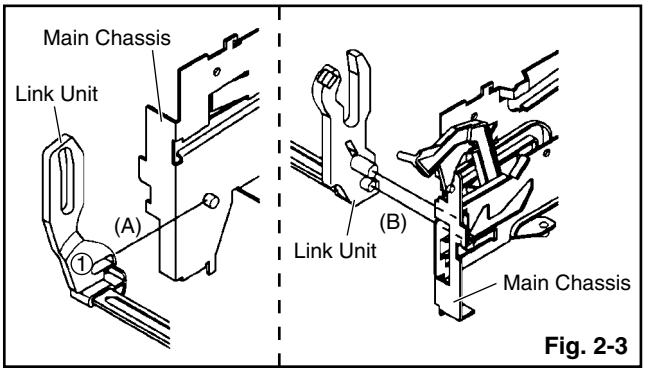


Fig. 2-3

2-4: LINK LEVER/FLAP LEVER (Refer to Fig. 2-4)

1. Extend the support ①.
2. Remove the Link Lever.
3. Remove the Flap Lever.

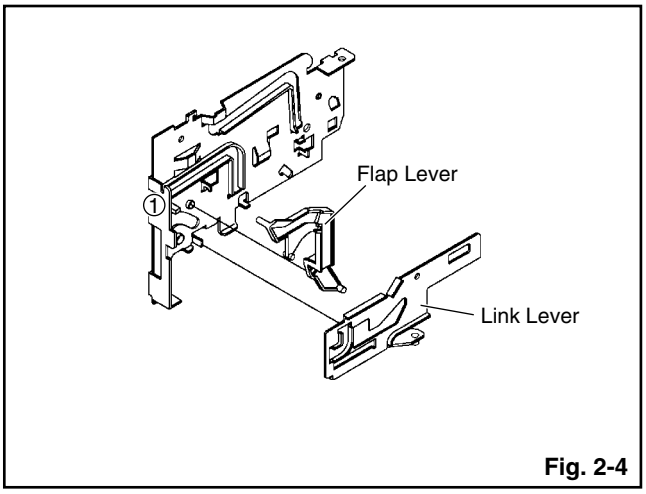


Fig. 2-4

2-5: LOADING MOTOR/WORM (Refer to Fig. 2-5-A)

1. Remove the screw ①.
2. Remove the Loading Motor.
3. Remove the Worm.

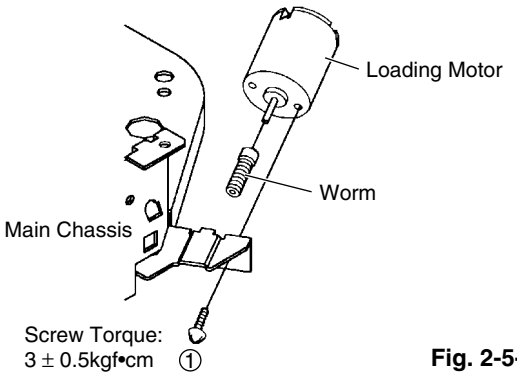


Fig. 2-5-A

NOTE:

1. In case of the Worm installation, check if the value of the Fig. 2-5-B is correct.
2. In case of the Loading Motor installation, hook the wire on the Cassette Opener as shown Fig. 2-6-C.
3. When installing the wires between Capstan DD Unit and Loading Motor, connect them correctly as shown Fig. 2-5-D.

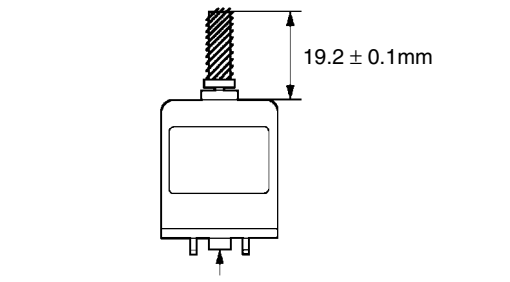


Fig. 2-5-B

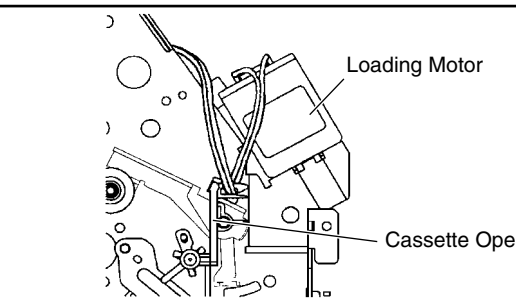


Fig. 2-5-C

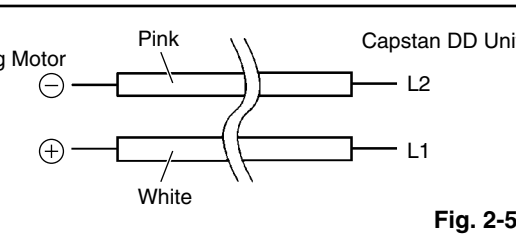


Fig. 2-5-D

2-6: TENSION ASSY (Refer to Fig. 2-6-B)

1. Turn the Pinch Roller Cam clockwise so that the Tension Holder hook is set to the position of Fig. 2-6-A to move the Tension Arm Assy.
2. Remove the Tension Spring.
3. Unlock the 2 supports ① and remove the Tension Band.
4. Unlock the support ② and remove the Tension Arm Assy.
5. Unlock the support ③ and remove the Tension Connect.
6. Float the hook ④ and turn it clockwise then remove the Tension Holder.

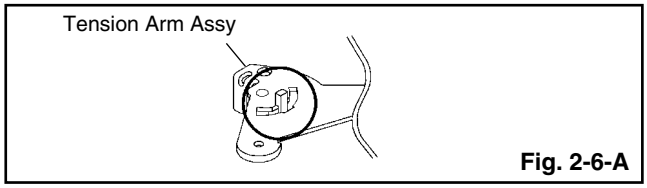


Fig. 2-6-A

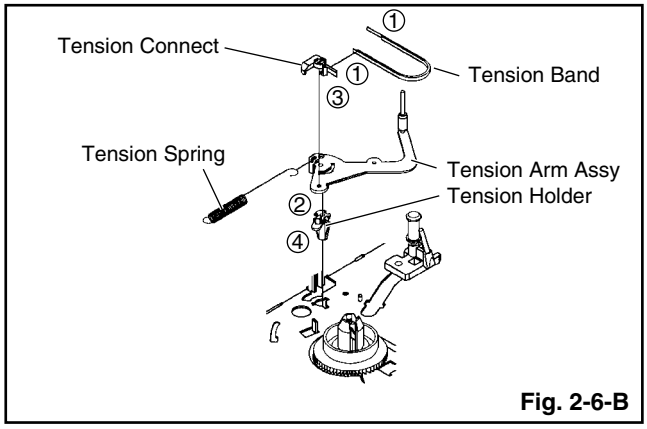


Fig. 2-6-B

NOTE:

1. In case of the Tension Band installation, note the direction of the installation. **(Refer to Fig. 2-6-C)**
2. In case of the Tension Band installation, install correctly as Fig. 2-6-D.
3. In case of the Tension Connect installation, install as the circled section of Fig. 2-6-E.

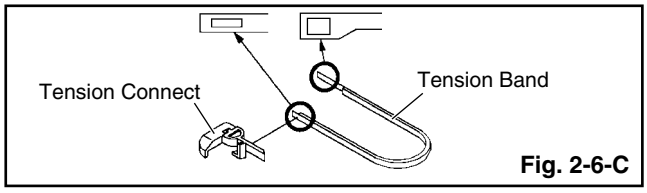


Fig. 2-6-C

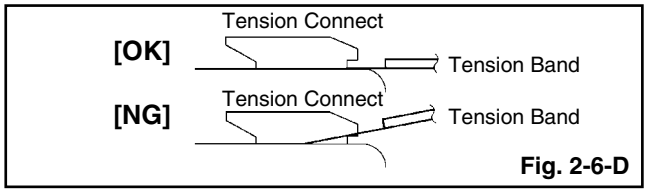


Fig. 2-6-D

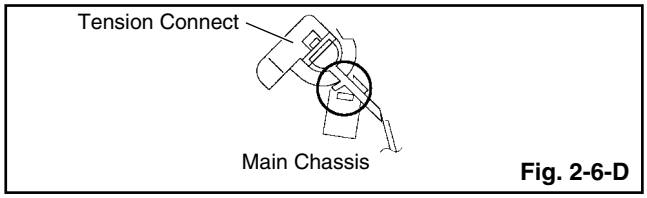


Fig. 2-6-D

2-7: T BRAKE ARM/T BRAKE BAND (Refer to Fig. 2-7-A)

1. Remove the T Brake Spring.
2. Turn the T Brake Arm clockwise and bend the hook section to remove it.
3. Unlock the 2 supports ① and remove the T Brake Band.

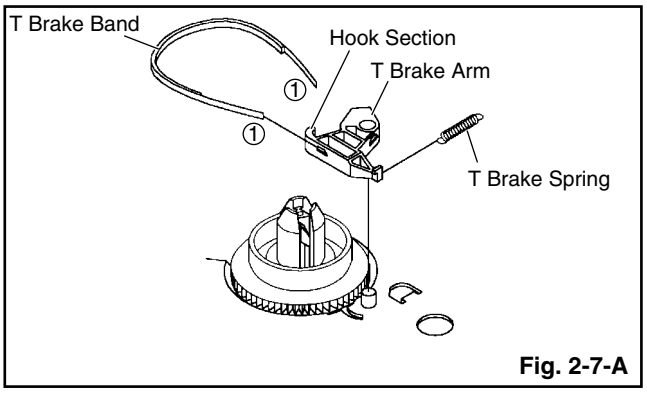


Fig. 2-7-A

NOTE:

1. In case of the T Brake Band installation, install correctly as Fig. 2-7-B.

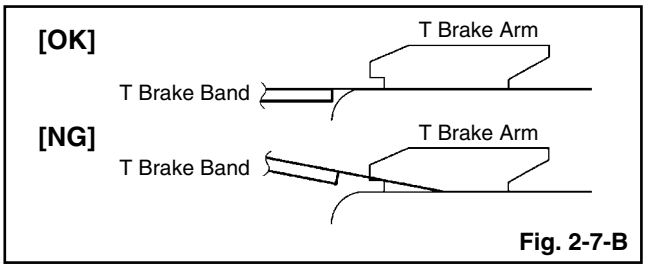


Fig. 2-7-B

2-8: S REEL/T REEL/IDLER ARM ASS'Y/IDLER GEAR (Refer to Fig. 2-8-A)

1. Remove the S Reel and T Reel.
2. Remove the 2 Polyslider Washers ①.
3. Remove the Idler Arm Ass'y and Idler Gear.

NOTE:

1. Take care not to damage the gears of the S Reel and T Reel.
2. The Polyslider Washer may be remained on the back of the reel.
3. Take care not to damage the shaft.
4. Do not touch the section "A" of S Reel and T Reel. (Use gloves.) **(Refer to Fig. 2-8-A)** Do not adhere the stains on it.
5. When you install the reel, clean the shaft and grease it (FG-84M). (If you do not grease, noise may be heard in FF/REW mode.)
6. After installing the reel, adjust the height of the reel. **(Refer to MECHANICAL ADJUSTMENT)**

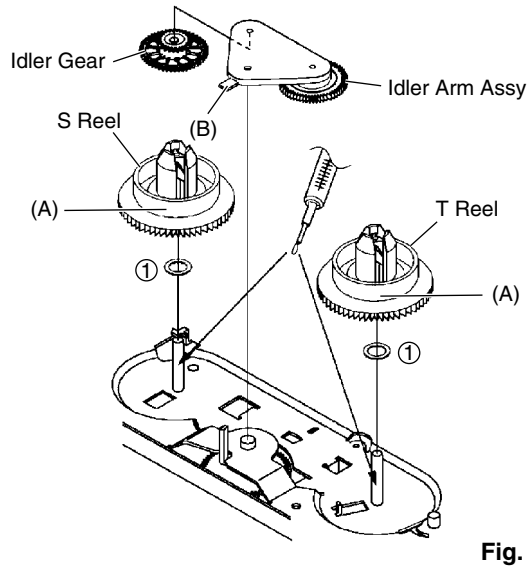


Fig. 2-8-A

NOTE:

1. In case of the S Reel and T Reel installation, check if the correct parts are installed. **(Refer to Fig. 2-8-B)**
2. In case of the Idler Arm Ass'y installation, install correctly as Fig. 2-8-C. And also set it so that the section "B" of Fig. 2-8-A is placed under the Main Chassis tab.

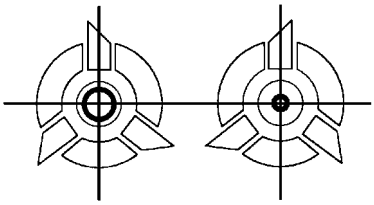


Fig. 2-8-B

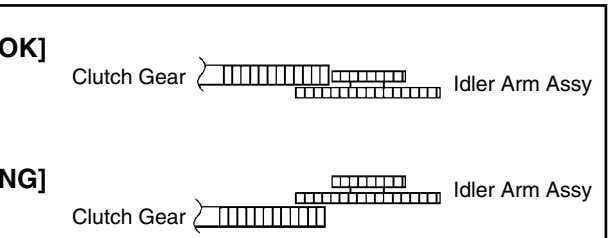


Fig. 2-8-C

2-9: CASSETTE OPENER/PINCH ROLLER BLOCK/P5 ARM ASSY (Refer to Fig. 2-9-A)

1. Unlock the support ① and remove the Cassette Opener.
2. Remove the Pinch Roller Block and P5 Arm Assy.

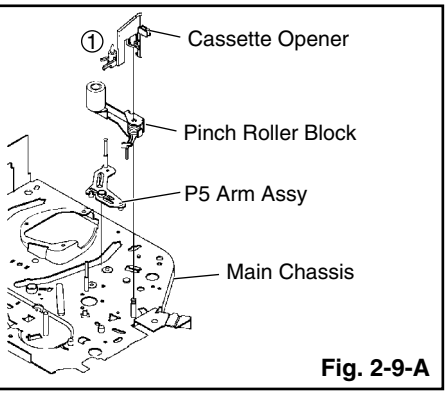


Fig. 2-9-A

NOTE:

1. Do not touch the Pinch Roller. (Use gloves.)
2. In case of the Pinch Roller Block and the Pinch Roller Cam installation, install correctly as Fig. 2-9-B.

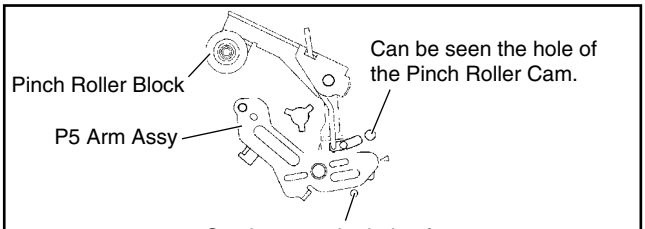


Fig. 2-9-B

2-11: A/C HEAD (Refer to Fig. 2-10-A)

1. Remove the screw ①.
2. Remove the A/C Head Base.
3. Remove the 3 screws ②.
4. Remove the A/C Head and A/C Head Spring.

NOTE:

1. Do not touch the A/C Head. (Use gloves.)
2. When you install the A/C Head Spring, install as shown in Fig. 2-11-B.
3. When you install the A/C Head, tighten the screw (1) first, then tighten the screw (2), finally tighten the screw (3).

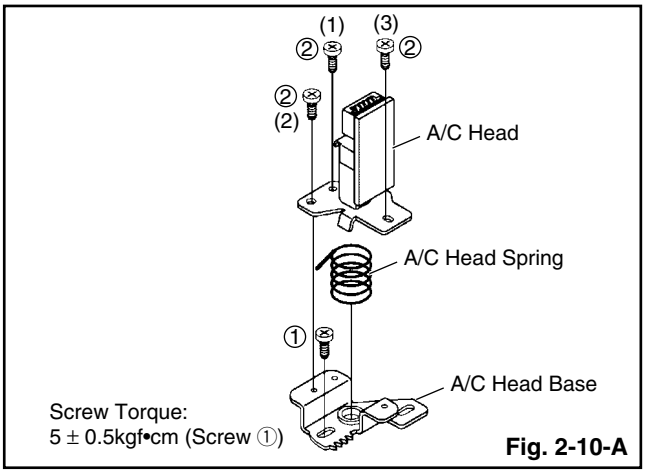


Fig. 2-10-A

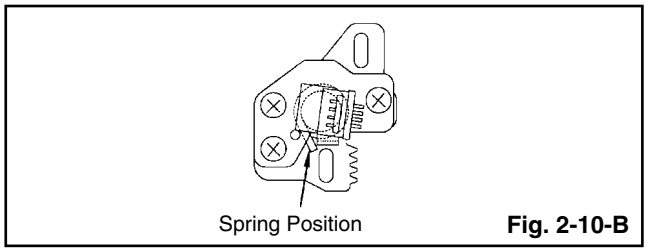


Fig. 2-10-B

2-11: FE HEAD (RECORDER ONLY) (Refer to Fig. 2-11)

1. Remove the screw ①.
2. Remove the FE Head.

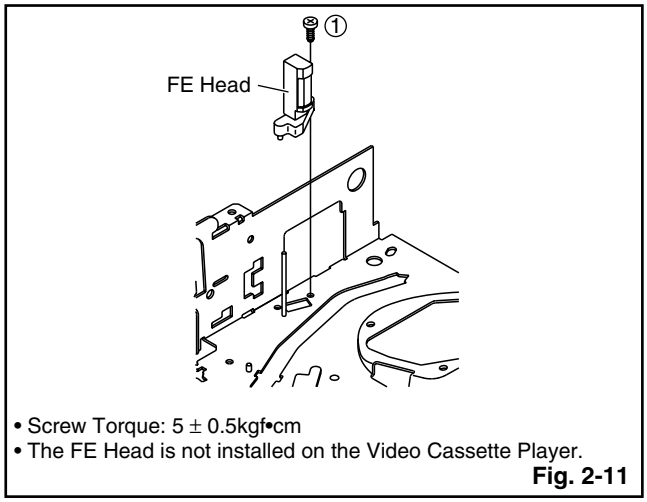


Fig. 2-11

2-12: CYLINDER UNIT ASSY (Refer to Fig. 2-12)

1. Disconnect the following connector: (CD2001)
2. Remove the 3 screws ②.
3. Remove the Cylinder Unit Assy.

NOTE:

1. When you install the Cylinder Unit Assy, tighten the screws from (1) to (3) in order while pulling the Assy toward the left front direction.

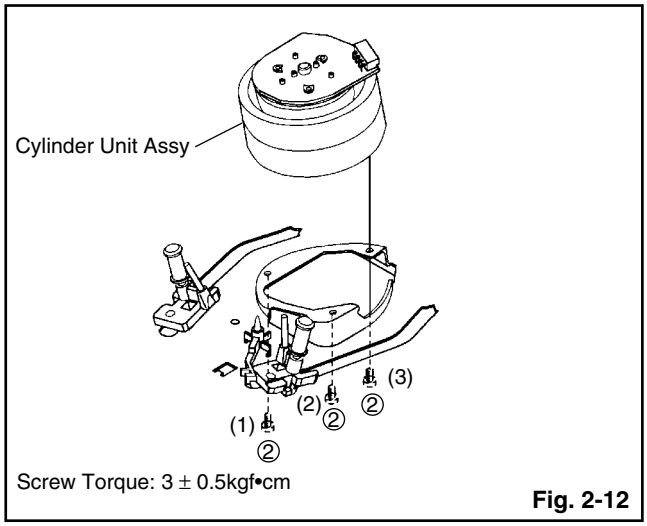
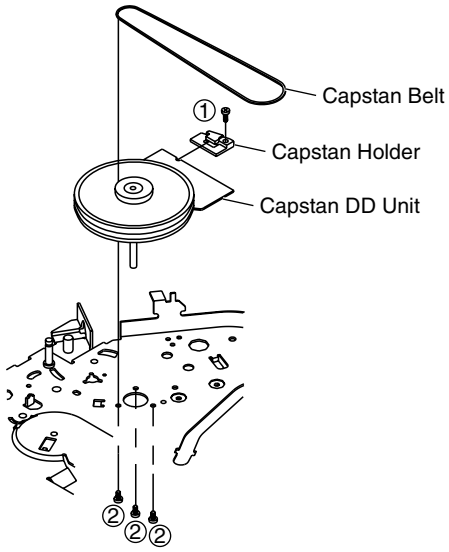


Fig. 2-12

2-13: CAPSTAN DD UNIT (Refer to Fig. 2-14)

1. Remove the Capstan Belt.
2. Remove the screw ①.
3. Remove the Capstan Holder.
4. Remove the 3 screws ②.
5. Remove the Capstan DD Unit.



Screw Torque: 4 ± 0.5kgf•cm

Fig. 2-13

2-14: MAIN CAM/PINCH ROLLER CAM/JOINT GEAR (Refer to Fig. 2-14-A)

1. Remove the E-Ring ①, then remove the Main Cam.
2. Remove the E-Ring ②, then remove the Pinch Roller Cam and Joint Gear.

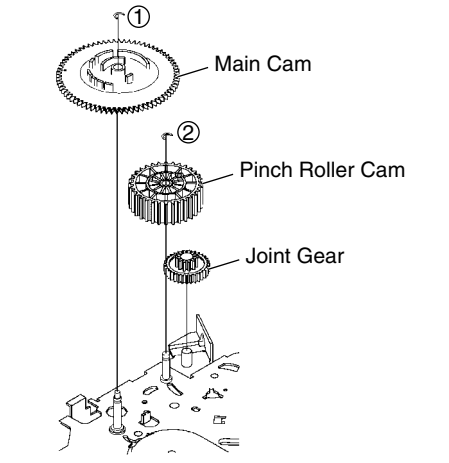


Fig. 2-14-A

NOTE:

1. In case of the Pinch Roller Cam and Main Cam installation, install them as the circled section of Fig. 2-15-B so that the each markers are met. **(Refer to Fig. 2-14B)**

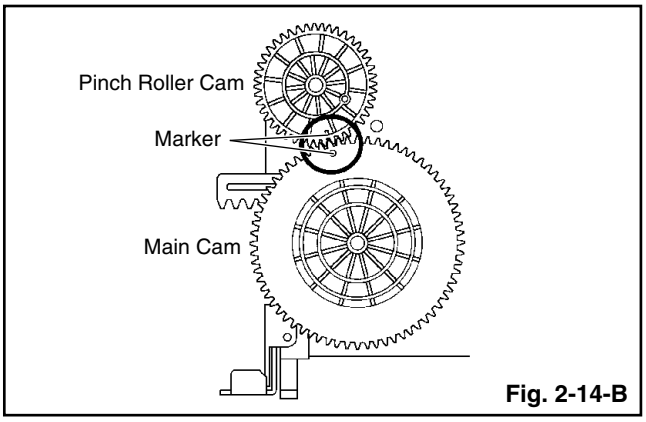


Fig. 2-14-B

2-15: LOADING GEAR S/T UNIT (Refer to Fig. 2-15-A)

1. Remove the E-Ring ① and remove the Main Loading Gear.
2. Remove the Main Rod, Tension Lever, Loading Arm S Unit and Loading Arm T Unit.

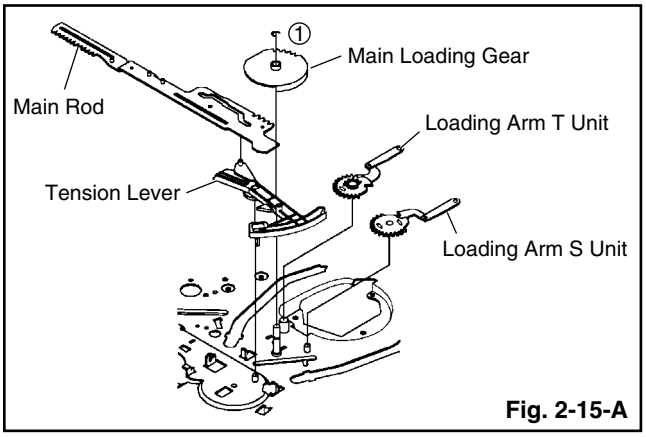


Fig. 2-15-A

NOTE:

1. When you install the Loading Arm S Unit, Loading Arm T Unit and Main Loading Gear, align each marker. **(Refer to Fig. 2-15B)**

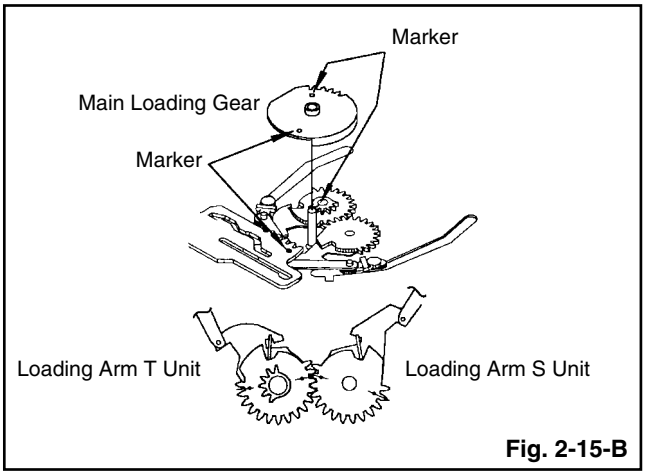


Fig. 2-15-B

2-16: CLUTCH ASSY/RING SPRING/CLUTCH LEVER/CLUTCH GEAR (Refer to Fig. 2-16-A)

1. Remove the Polyslider Washer ①.
2. Remove the Clutch Assy and Ring Spring.
3. Remove the Clutch Lever.
4. Remove the Coupling Gear, Coupling Spring and Clutch Gear.

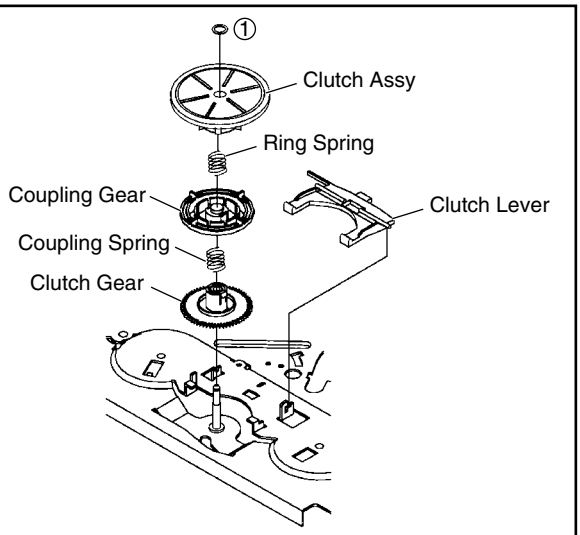


Fig. 2-16-A

NOTE:

1. In case of the Clutch Assy installation, install it with inserting the spring of the Clutch Assy into the dent of the Coupling Gear. **(Refer to Fig. 2-16-B)**

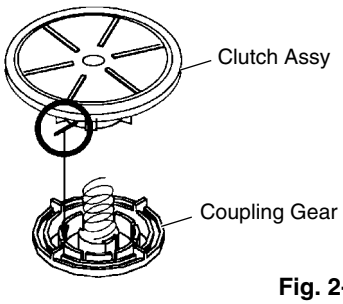
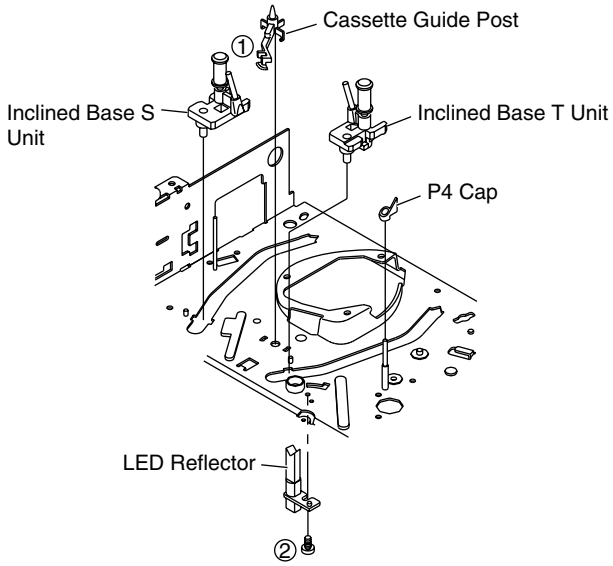


Fig. 2-16-B

2-17: CASSETTE GUIDE POST/INCLINED BASE S/T UNIT/P4 CAP/LED REFLECTOR (Refer to Fig. 2-17-A)

1. Remove the P4 Cap.
2. Unlock the support ① and remove the Cassette Guide Post.
3. Remove the Inclined Base S/T Unit.
4. Remove the screw ②.
5. Remove the LED Reflector.



Screw Torque: 5 ± 0.5kgf•cm

Fig. 2-17-A

NOTE:

1. Do not touch the roller of Guide Roller.
2. In case of the P4 Cap installation, install it with parallel for "A" and "B" of Fig. 2-17-B.
3. In case of the Cassette Guide Post installation, install correctly as the circled section of Fig. 2-17-C.

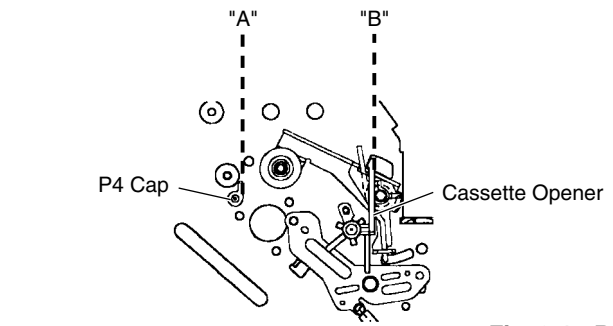


Fig. 2-17-B

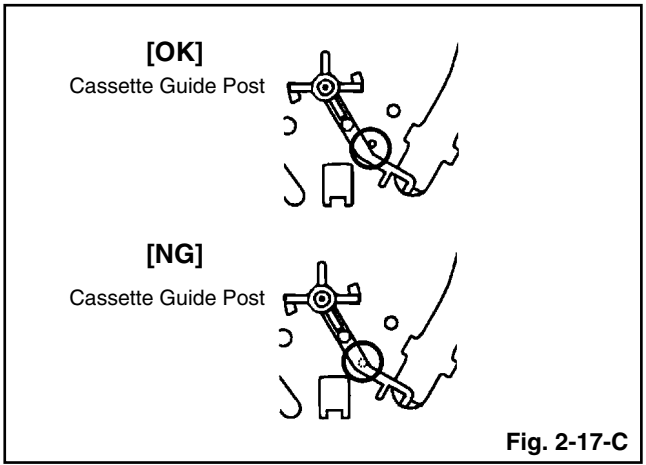


Fig. 2-17-C

7.10 CAUTIONS ON DIASSEMBLING AND ASSEMBLING

Screw List

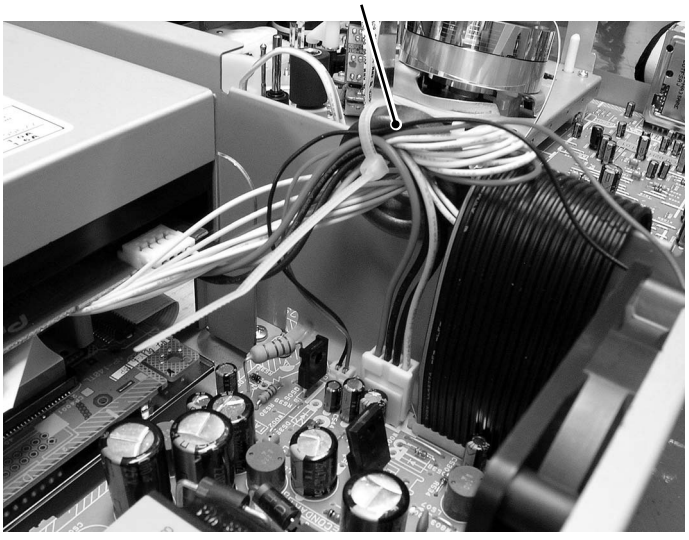
Parts Name	Num.	Used part	Parts Code
SCREW, TAP TITE(B) WH7 3*10 CH	1	HEAT SINK	8109I30A0U
SCREW, TAP TITE(P) WH10 M2.6*8 CH	1	SPRING of DVD FLAP	8110E2680U
SCREW, TAP TITE(P) BIND 2.6*8 CH	3	OPERATION PCB	8110022680U
SCREW, BIND 3*6 CH	4	ANGLE DVD + LOADER	810223060U
SCREW, TAP TITE(S) BIND 3*4 CH	1	TUNER	810723040U
SCREW, TAP TITE(B)R PAN 3*29 CH	3	VCR DECK	8109130B9U
SCREW, TAP TITE(B) R BIND 3*7 CH	13	VCR PCB 1 MPEG PCB 4 ANGLE DVD + BOTTOM 6 ANGLE DVD + SHIELD 2	810923070U
SCREW, TAP TITE(B) BIND 3*8 CH	12	POWER PCB 3 3PIN JACK 4 FAN 2 S-VIDEO 2 OPTICAL JACK 1	810923080U
SCREW, TAP TITE(B) BIND(3D) 3*6 NI	5	CABINET TOP	8109K30601

CORD CONNECTOR, CORD JUMPER List

Parts Name			Used part	REF NO.	Parts Code
CORD CONNECTOR	C32A2603	10PIN L=260MM P=2.0MM	VCR⇔MPEG 10 wires	CD7304	06C32A2603
CORD CONNECTOR	C3262101	6PIN L=210MM P=2.0MM	VCR⇔OPERATION	CD651	06C3262101
CORD CONNECTOR	C3641204	4PIN L=120MM P=2.5MM	DVD DECK⇔POWER for DECK Power	CD504	06C3641204
CORD JUMPER	BH040081	40PIN L=60MM P=0.5MM H=8MM	DVD DECK⇔MPEG	CD4001	12BH040081
CORD JUMPER	2F041508	4PIN FFC L=150MM W/O AE HE	VCR⇔AC HEAD	CD102	122F041508
CORD JUMPER	2H0F1801	15PIN L=180MM P=1.0MM	MPEG⇔VCR	CD7303	122H0F1801
CORD JUMPER	2H0K1802	20PIN L=180MM P=1.0MM FFC	MPEG⇔VCR	CD7301	122H0K1802
CORD JUMPER	2H0K1802	20PIN L=180MM P=1.0MM FFC	MPEG⇔VCR	CD7302	122H0K1802

■CAUTION

1. When reattaching the Front Cabinet, attach the cabinet pressing the Flap of VCR side toward inside.
2. When reattaching the POWER PCB Assy to the Plate bottom, tighten the two screws for the round holes first then tighten the screws for the slotted holes.
3. When reattaching the Angle DVD to the DVD deck, tighten the screws for the round holes situated on the rear side first.
4. Insert each flexible cable straight, to avoid loose connection.
5. Be sure to pass the binder through the ferrite core that is attached to the CD7304 (10 wires that connect between MPEG and VCR) and secure and fix both the ferrite core and the CD7304 using the binder. If only the wires are secured but the ferrite core is not, the ferrite core may have movement and become damaged.
6. When attaching the ferrite core to the CD7304, pass the wires through it twice (one wind around it). Incorrect attachment of the ferrite core may compromise its effects of reducing spurious radiation.



■CAUTION (Continued)

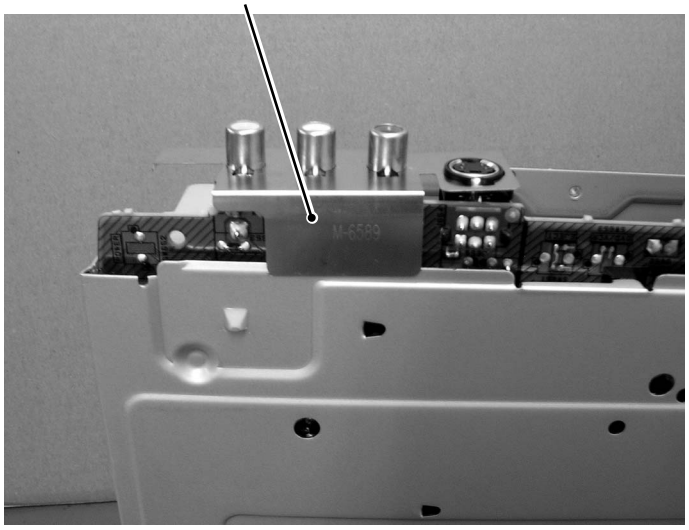
7. Be sure to reattach the Cover AC Head, which is for preventing noise from invading normal audio signals.

Cover AC Head

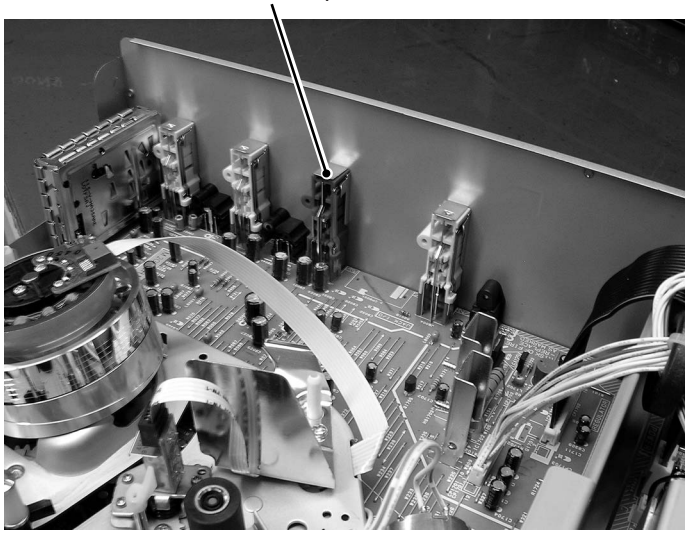
8. Be sure to reattach the Shield 3 Pin to the front jack and the Shield Compo to the rear jack of the VCR MT PCB Assy. Those are for preventing electrostatics.

9. Be sure to reattach the Shield 3 Pin so that part of it protrudes from the Plate bottom. Be careful that the Shield 3 Pin is not embedded between the Plate bottom and the circuit board.

Shield 3 Pin



Shield Compo



7.11 KEY TO ABBREVIATIONS

A	A/C	:	Audio/Control
	ACC	:	Automatic Color Control
	AE	:	Audio Erase
	AFC	:	Automatic Frequency Control
	AFT	:	Automatic Fine Tuning
	AFT DET	:	Automatic Fine Tuning Detect
	AGC	:	Automatic Gain Control
	AMP	:	Amplifier
	ANT	:	Antenna
	A.PB	:	Audio Playback
	APC	:	Automatic Phase Control
	ASSY	:	Assembly
	AT	:	All Time
	AUTO	:	Automatic
	A/V	:	Audio/Video
B	BGP	:	Burst Gate Pulse
	BOT	:	Beginning of Tape
	BPF	:	Bandpass Filter
	BRAKE SOL	:	Brake Solenoid
	BUFF	:	Buffer
	B/W	:	Black and White
C	C	:	Capacitance, Collector
	CASE	:	Cassette
	CAP	:	Capstan
	CARR	:	Carrier
	CH	:	Channel
	CLK	:	Clock
	CLOCK (SY-SE)	:	Clock (Syscon to Servo)
	COMB	:	Combination, Comb Filter
	CONV	:	Converter
	CPM	:	Capstan Motor
	CTL	:	Control
	CYL	:	Cylinder
	CYL-M	:	Cylinder-Motor
	CYL SENS	:	Cylinder-Sensor
D	DATA (SY-CE)	:	Data (Syscon to Servo)
	dB	:	Decibel
	DC	:	Direct Current
	DD Unit	:	Direct Drive Motor Unit
	DEMOD	:	Demodulator
	DET	:	Detector
	DEV	:	Deviation
E	E	:	Emitter
	EF	:	Emitter Follower
	EMPH	:	Emphasis
	ENC	:	Encoder
	ENV	:	Envelope
	EOT	:	End of Tape
	EQ	:	Equalizer
	EXT	:	External
F	F	:	Fuse
	FBC	:	Feed Back Clamp
	FE	:	Full Erase
	FF	:	Fast Forward, Flipflop
	FG	:	Frequency Generator
	FL SW	:	Front Loading Switch
	FM	:	Frequency Modulation
	FSC	:	Frequency Sub Carrier
	FWD	:	Forward
G	GEN	:	Generator
	GND	:	Ground
H	H.P.F	:	High Pass Filter
	H.SW	:	Head Switch
	Hz	:	Hertz
I	IC	:	Integrated Circuit
	IF	:	Intermediate Frequency
	IND	:	Indicator
	INV	:	Inverter
K	KIL	:	Killer
L	L	:	Left
	LED	:	Light Emitting Diode
	LIMIT AMP	:	Limiter Amplifier
	LM, LDM	:	Loading Motor
L	LP	:	Long Play
	L.P.F	:	Low Pass Filter
	LUMI.	:	Luminance
M	M	:	Motor
	MAX	:	Maximum
	MINI	:	Minimum
	MIX	:	Mixer, mixing
	MM	:	Monostable Multivibrator
	MOD	:	Modulator, Modulation
	MPX	:	Multiplexer, Multiplex
	MS SW	:	Mecha State Switch
N	NC	:	Non Connection
	NR	:	Noise Reduction
O	OSC	:	Oscillator
	OPE	:	Operation
P	PB	:	Playback
	PB CTL	:	Playback Control
	PB-C	:	Playback-Chrominance
	PB-Y	:	Playback-Luminance
	PCB	:	Printed Circuit Board
	P. CON	:	Power Control
	PD	:	Phase Detector
	PG	:	Pulse Generator
	P-P	:	Peak-to Peak
R	R	:	Right
	REC	:	Recording
	REC-C	:	Recording-Chrominance
	REC-Y	:	Recording-Luminance
	REEL BRK	:	Reel Brake
	REEL S	:	Reel Sensor
	REF	:	Reference
	REG	:	Regulated, Regulator
	REW	:	Rewind
	REV, RVS	:	Reverse
	RF	:	Radio Frequency
	RMC	:	Remote Control
	RY	:	Relay
S	S. CLK	:	Serial Clock
	S. COM	:	Sensor Common
	S. DATA	:	Serial Data
	SEG	:	Segment
	SEL	:	Select, Selector
	SENS	:	Sensor
	SER	:	Search Mode
	SI	:	Serial Input
	SIF	:	Sound Intermediate Frequency
	SO	:	Serial Output
	SOL	:	Solenoid
	SP	:	Standard Play
	STB	:	Serial Strobe
	SW	:	Switch
	SYNC	:	Synchronization
	SYNC SEP	:	Sync Separator, Separation
T	TR	:	Transistor
	TRAC	:	Tracking
	TRICK PB	:	Trick Playback
	TP	:	Test Point
U	UNREG	:	Unregulated
V	V	:	Volt
	VCO	:	Voltage Controlled Oscillator
	VIF	:	Video Intermediate Frequency
	VP	:	Vertical Pulse, Voltage Display
	V.PB	:	Video Playback
	VR	:	Variable Resistor
	V.REC	:	Video Recording
	VSF	:	Visual Search Fast Forward
	VSR	:	Visual Search Rewind
	VSS	:	Voltage Super Source
	V-SYNC	:	Vertical-Synchronization
	VT	:	Voltage Tuning
X	X'TAL	:	Crystal
Y	Y/C	:	Luminance/Chrominance

7.12 DISC/CONTENT FORMAT

Discs which can be played back

In this unit, use only discs that meet the standard, such as those bearing the below logo marks on the disc label surface. If you use a non-standard disc, we cannot guarantee playback. Even if such a disc can be played back, we cannot guarantee the image or sound quality. The DVD logo is a registered trademark.

Media type	Logo mark
DVD-Video	
DVD-RWVer.1.0 Ver.1.1 Ver.1.2 Ver.1.1CPRM support	
DVD-R Ver.2.0 (Ver.2.0/4x/8x)	
Audio CD*	
CD-R/CD-RW	

* This unit is designed to playback music Compact Discs (CD) that conform to the CD standard. CDs that contain (copy-restriction) signals to protect copyrights cannot be played back.

- *DVD is a trademark of DVD Format/Logo Licensing Corporation.*
- Playability of 'DualDisc'
  – The DVD-Audio content on DVD side of a DualDisc cannot be played with this product.
  – The DVD-Video content on DVD side of a DualDiscmay or may not be played with this product.
  – Since audio content on 'non-DVD' side of a DualDisc is not compliant with the Compact Disc Digital Audio specification, it may or may not be played with this product.
  – If you need further information about playability of DualDisc, please see 'Service & Support' on the Pioneer web site *(www.pioneerelectronics.com)*

Region management information

This unit is designed and manufactured to support the region management information that is recorded on a DVD disc. If the region number written on the DVD disc does not correspond to the region number of this unit, this unit cannot play that disc.

- The region number of this unit is "1".
- The unit will play DVD-Video discs marked with labels containing "1" or "ALL".

Example:

Operating DVD-Video

- Some operations of DVD-Video may be prohibited by the manufacturer, or some operation methods or functions of the DVD-Video may be different from the description in this manual.
- If you attempt an operation that is prohibited by either the disc or the unit, a "✋" mark will appear on the TV monitor. For operations prohibited by the disc, see the information that came with the disc.
- When the menu screen or the operation guide appears during disc playback, follow the displayed information.

Discs which cannot be played back

The discs listed below cannot be played back in general. Even if one of these can be played back, it may not be played back correctly. If a disc is played back by mistake, extensively loud sounds may blow the speakers or may damage the hearing of those in hearing range. Do not playback the discs listed below.

CDG, Photo-CD, CD-ROM, CD-TEXT, CD-EXTRA, VCD, SVCD, SACD, PD, CDV, DVD-ROM, DVD-RAM, DVD+R/RW, DVD audio, etc.

The below DVD-Video may not be played back.

- DVD-Video that do not have the region number "1" or "ALL".
- PAL or SECAM DVD-Video.
- Prohibited or business-use DVD-Video.

CD-R/CD-RWs cannot be played back for the following reasons.

- Compatibility of the disc and this unit.
- Compatibility of the disc and the recorder used.
- Unfinalized discs.

Do not playback the following discs. Playback of these discs may cause a failure.

- Discs on which paper, labels or stickers are affixed.
- Discs that have sticky areas left by adhesive tape.
- Special-shaped discs.

PC-created disc compatibility

Discs recorded using a personal computer may not be playable in this unit due to the setting of the application software used to create the disc. In these particular instances, check with the software publisher for more detailed information.

Discs on which video can be recorded

To record video with this unit, use the discs below.

Media type	Logo mark
DVD-RW Ver.1.0 Ver.1.1 Ver.1.2 Ver.1.1CPRM support	DVD RW DVD RW RW 2
DVD-R Ver.2.0 (Ver.2.0 /4x /8x)	DVD R

DVD-RW

- The disc can be erased and used again about 1,000 times.
- Only the VR mode can be used for Ver.1.0 discs.
- With Ver.1.1/1.2 discs, you can record by selecting the VR mode or Video mode.
- When you record in the VR mode, you can repeatedly record and erase. By erasing unnecessary titles, you effectively increase remaining time.
- When you record in the Video mode, you can record until the disc becomes full.
- When you use the Video mode, you can newly record on the disc by formatting the disc. However, if the disc is formatted, all the recorded contents will be erased.

DVD-R

- You can record on the disc only in the Video mode.
- You can record until the disc becomes full.
- Finalizing the discs allows playback on other DVD players. However, the finalized discs can no longer be recorded.
- Discs can be recorded to repeatedly until they are finalized.

Note

- There are some players that cannot playback discs that were recorded with this unit. We cannot guarantee the playback with other units.
- This unit cannot record on CD-R or CD-RW.
- This unit may not be able to record to or playback from discs that have been recorded on other units due to the recording conditions, surface dirt or scratches.
- Other units may not be able to record to or playback from discs that have been recorded on the unit due to the recording conditions, surface dirt or scratches.

Recording format

This unit has two modes for formatting discs for recording: VR mode and Video mode.
When a blank, new disc is loaded into this unit, the automatic format function starts to format the disc. (For the disc format setting in this step, see page 27.)

VR mode

- This mode can be used for DVD-RW.
- In this mode, the discs can be recorded and edited repeatedly.
- The disc recorded in this mode can be played back with other DVD-RW-compatible players.
- When a Ver.1.1 CPRM or Ver. 1.2 disc is used, you can record a “Copy Once” program (see page 53).

Video mode

- This mode can be used for DVD-R and DVD-RW (Ver.1.1/1.2).
- When you finalize the disc after recording, the disc recorded with this unit can be played back with other DVD players.
- Recording, editing or playback of an unfinalized disc can be done only with this unit. However, there is some limitation to editing operations.
- In this mode, you cannot record a “Copy Once” program (see page 53).
- When you record a TV program of a bilingual broadcast, only one of the audio modes can be recorded. You have to select it.

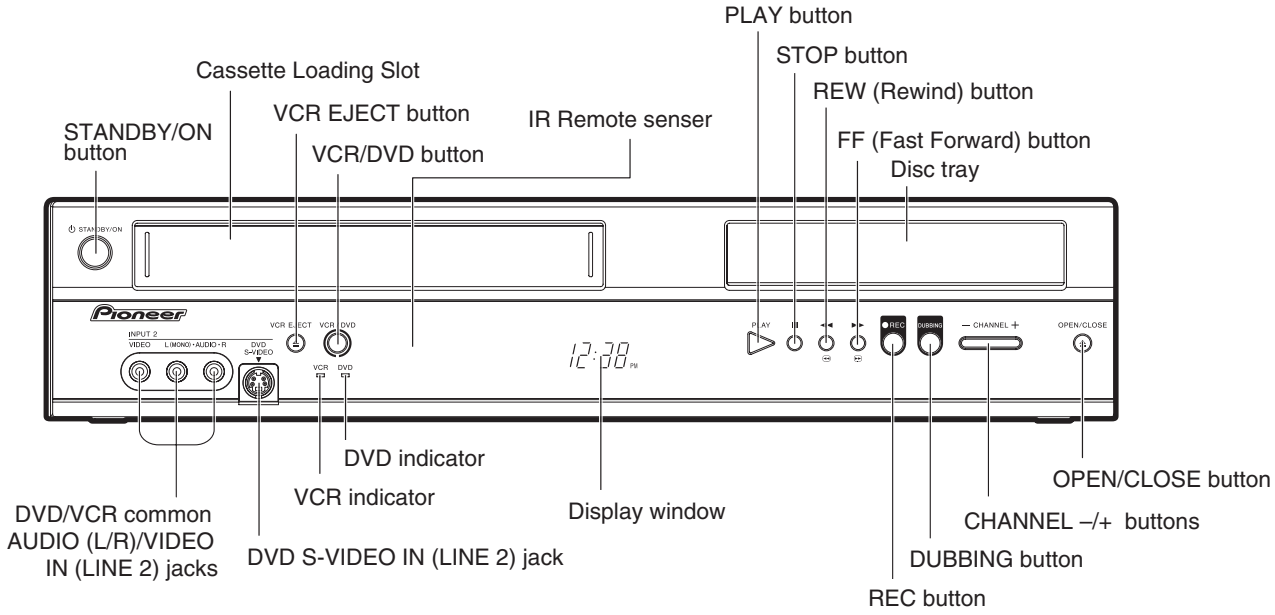
Format modes that can be used each disc

The usable format depends on the media type as shown in the below table.

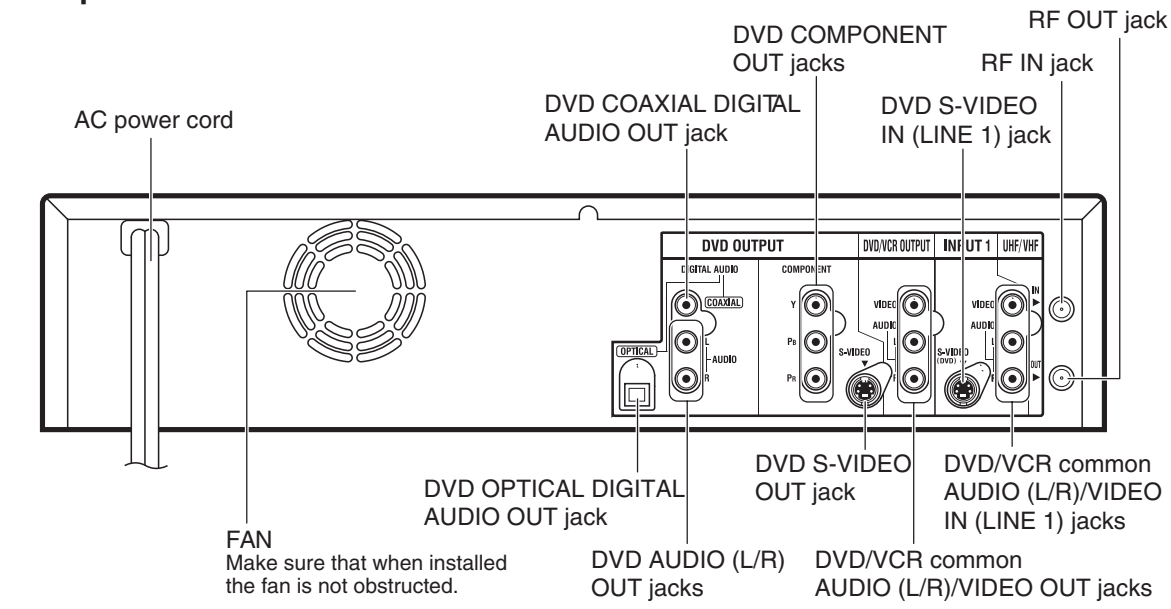
Media type	Format	Available functions
DVD-RW Ver.1.0	VR mode	Playback, recording and editing (Original/playlist)
DVD-RW Ver.1.1 and 1.2	VR mode	Playback, recording and editing (Original/playlist)
	Video mode	Playback and recording Editing (with limitation)
DVD-R Ver.2.0 (Ver.2.0/4x/8x)	Video mode	Playback and recording Editing (with limitation)

8. PANEL FACILITIES
8.1 FRONT AND REAR SECTION

Front panel

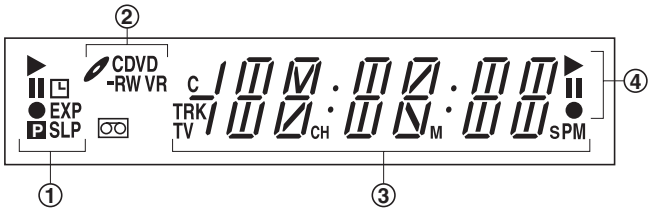


Rear panel


RF OUT jack
DVD COMPONENT OUT jacks
RF IN jack
DVD COAXIAL DIGITAL AUDIO OUT jack
DVD S-VIDEO IN (LINE 1) jack
AC power cord
DVD OUTPUT
DVD/VCR OUTPUT
INPUT 1
UHF/VHF
DVD OPTICAL DIGITAL AUDIO OUT jack
DVD S-VIDEO OUT jack
DVD/VCR common AUDIO (L/R)/VIDEO IN (LINE 1) jacks
FAN
Make sure that when installed the fan is not obstructed.
DVD AUDIO (L/R) OUT jacks
DVD/VCR common AUDIO (L/R)/VIDEO OUT jacks

8.2 DISPLAY

Display window



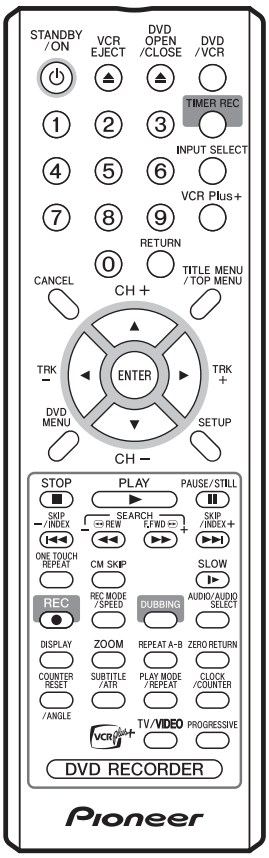
No.	Display	Description
①	▶	Lights during video tape playback.
	❚❚	Video tape is temporarily stopped.
	●	Lights during video tape recording.
	P	Progressive scanning mode.
	◱	Timer recording display.
	XP/SP/LP/EP	4 DVD recording modes. XP, SP, LP or EP is selected in turn by pressing the REC MODE/SPEED repeatedly.
	SP/EP	2 VCR recording modes. SP or EP is selected in turn by pressing the REC MODE/SPEED repeatedly.
②	CD	Appears when a CD is inserted.
	CD-R	Appears when a CD-R is inserted.
	CD-RW	Appears when a CD-RW is inserted.
	DVD	Appears when a DVD-Video is inserted.
	DVD-R	Appears when a DVD-R is inserted.
	DVD-RW	Appears when a DVD-RW is inserted.
	VR	Appears when a DVD-RW in VR mode is inserted. When the disc is set to video mode, VR does not appear.
	⊙⊙	Video tape is in the unit.
③	10:00	Clock display (Colon [:] flashes).
	01H00M00S	Counter display in hour/minute/second for VCR/DVD, minute/second for CD.
	C 36CH	Cable TV channel display.
	2CH	TV channel display.
	TRK 002	Track number display for CD.
	TV	Appears when the tuner built into this unit is not selected. When you press TV/VIDEO, TV disappears.
	PM	Display for afternoon (out in the morning).
	L1/L2	The external input channel (L1 or L2) display.
	Err	Error display.
④	▶	Lights during playback of DVD and CD. Flashes in auto resume.
	❚❚	DVD or CD is temporarily stopped.
	●	Lights during DVD recording.

Note

- Some discs may not playback correctly or chapter number, playback time, etc may not be displayed.

8.3 REMOTE CONTROL

Remote control



1 STANDBY/ON
Turns power on/off.

2 VCR EJECT
Ejects the cassette tapes.

3 DVD OPEN/CLOSE
Opens or closes the tray.

4 DVD/VCR
Switches to operation between VCR and DVD.

5 0-9
Use for direct TV channel selection of TV; setting the input; entering a password; entering a Pluscode for VCR Plus+ timer programming.

6 TIMER REC
Sets the unit to start recording at a preset time.

7 INPUT SELECT
Switches between the external inputs.

8 VCR Plus+
Display the VCR Plus+ program screen.

9 RETURN
Closes the menu window.

10 CANCEL
Cancels input data in the setting mode ; deletes the timer recording program.

11 TITLE MENU/TOP MENU
Selects titles of a DVD disc.

12 CH +/–
Use to select TV channels.
▲ / ▼ Up/down cursor buttons.

13 TRK +/–
Use to adjust the VCR manual playback tracking.
◄ / ► Left/right cursor buttons.

14 ENTER
Use to select menu options.

15 DVD MENU
Displays the menu of the DVD disc.

16 SETUP
Displays the setup menu.

17 STOP
Stops playback or recording.

18 PLAY
Starts playback.

19 PAUSE/STILL
Pauses recording or playback.

20 SKIP I◄◄ / ►►I
Skips forward or back chapters.

21 INDEX –I◄◄ / + ►►I
Searches for INDEX marks on a tape.

22 REW/SEARCH –
Rewind /review playback.

23 F.FWD/SEARCH +
Fast forward/forward search playback.

24 ONE TOUCH REPEAT
Repeats playback of the last 10 seconds of video.

25 CM SKIP
Skips commercial breaks.

26 SLOW
Starts slow motion playback.

27 REC
Starts recording.

28 REC MODE/SPEED
Selects the recording mode.

29 DUBBING
Copies VCR to DVD or DVD to VCR.

30 AUDIO/AUDIO SELECT
Switches sound between mono and stereo ; changes thelanguage of the DVD.

31 DISPLAY
Displays VCR or DVD operation status.

32 ZOOM

33 REPEAT A-B
Repeats playback between A and B.

34 ZERO RETURN
Stops the tape when the counter reaches $00_H00_M00_S$.

35 COUNTER RESET
Resets the counter to $00_H00_M00_S$.

36 ANGLE
Changes the DVD playback angle.

37 SUBTITLE
Selects subtitles of the DVD disc.

38 ATR
Digital auto tracking for VCR playback.

39 PLAY MODE
Selects the playback mode.

40 REPEAT
Selects the repeat playback mode.

41 CLOCK/COUNTER
Changes the front panel display mode.

42 TV/VIDEO
Switches input between the TV and VIDEO.

43 PROGRESSIVE
Activates the progressive scanning mode.

■ Jigs list

Name	Jig No.	Remarks
VHS Alignment Tape (VN_1S-LI6^{3}H)	GGV1183	Hi-Fi Audio (For 4 heads mode)
VHS Alignment Tape (VN_1S-X6^3)	GGV1184	X Value Adjustment (For 4 heads mode)
VHS Alignment Tape (VN_2E-LI6^{3}H)	GGV1185	EP Monoscope, 6kHz (For 4 heads mode)
Adapter	GGF1506	VSR Torque, Brake Torque (S Reel/T Reel Assy)
Dial Torque Gauge (10-90 gf•cm)	GGF1507	Brake Torque (T Reel Assy)
Dial Torque Gauge (60-600 gf•cm)	GGF1508	VSR Torque, Brake Torque (S Reel)
Post Adjustment Screwdriver	GGF1509	Guide Roller Adjustment
X Value Adjustment Screwdriver	GGF1510	X Value Adjustment
Mater Plane	GGF1511	Reel Disk Height Adjustment
Reel Disk Height Adjustment Jig	GGF1512	Reel Disk Height Adjustment
Torque Tape (VHT-063)	GGV1186	Playback Torque, Back Tension Torque During Palyback

■ CLEANING

Before shipping out the product, be sure to clean the following positions by using the prescribed cleaning tools:

Position to be cleaned	Cleaning tools
Pickup lenses	Cleaning liquid : GEM1004 Cleaning paper : GED-008

Position to be cleaned	Cleaning tools
Fans	Cleaning paper : GED-008